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# GLEANINGS

## IN BEE CULTURE

### CONTENTS

MARKET QUOTATIONS.....	346
STRAWS, by Dr. Miller.....	353
PICKINGS, by Stenog.....	355
BEE-KEEPING AMONG THE ROCKIES. ....	356
EDITORIALS.....	358
Something Better than Shook Swarming.....	358
In Memory of Capt. Hetherington.....	360
Manufactured Comb Honey.....	360
GENERAL CORRESPONDENCE.....	361
Pratt's "Baby Nuclei".....	361
Putting up Extracted Honey.....	363
Closed-end Frames for Wintering.....	364
Winter Still the Paramount Question.....	366
BEE-KEEPING IN THE SOUTHWEST.....	369
CONVERSATIONS WITH DOOLITTLE.....	367
HEADS OF GRAIN.....	379
In Memoriam.....	370
Something from a Missionary in Barbados.....	370
Tag-number and Record Holder.....	371
Basswood in Texas for Making Sections.....	371
Self-spacing Frame Stronger than Hoffman.....	372
Yellow Pine for Bee-hives.....	372
Bee-stings and Rheumatism.....	372
OUR HOMES.....	373
SPECIAL NOTICES.....	391

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# GLEANINGS

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS.

## BEE CULTURE

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BECAUSE of the difficulty of finding sale for it, *Le Rucher Belge* advises against the production of section honey in Belgium. Besides, bees sometimes swarm rather than to work in sections.

THE MOST TRYING times for cellared bees is when damp muggy weather comes with a rise of temperature. Seems ever so much worse than bright sunshine with same temperature. [Right you are.—Ed.]

THE PROSPECT seems to be good for a big crop all over; but with honey a drug on the market, and a lot more dumped upon it, where shall we be at? [I expect to see the honey market materially toned up.—Ed.]

WALTER S. POWDER gives some good things to think about, p. 301; but I think if he were on the Board of Directors for a few years he'd hardly want one for each State. In my judgment a mistake was made when the number was increased to 12.

TAKE TWO MEN, A and B, alike in every respect except that A is well nourished and B is poorly nourished. Both succumb to cold at the same moment. If taken in time, both may be revived. At the last moment, when it is possible to resuscitate him, the proper means are used to restore A, and he lives. The same means are used at the same moment to restore B, but he dies. He would have lived if he had been as well fed as A. We don't say he starved to death; we say he froze to death. Why not talk the same way about bees?

"THERE IS ONLY one cellar in a hundred that will hold such uniformity of tempera-

ture, irrespective of conditions outside," as Doolittle's, p. 292. Better make it one in three or four hundred. [Yes, and I am not sure but we might make it one in a thousand. One could not, therefore, follow Doolittle safely on this point unless he could have exactly his conditions in every respect. We have two outyard cellars, and can not begin to get the results with these that we can with the one under the machine-shop, where the great bulk of our bees are wintered.—Ed.]

FURTHER EXPERIENCE makes me less afraid to have bees fly with snow on the ground, *provided* it be not fresh and soft. March 16 I took out 20 colonies for a flight, thermometer 55, ground covered with snow, and scarcely a bee was to be found on the snow; but quite a few were found where water stood on the road in the afternoon. [At one time it would be perfectly safe to let bees fly out with snow on the ground, and at other times it would result in a heavy loss of bees. As explained in a previous issue one can not rely wholly on the thermometer.—Ed.]

"I THINK we all agree . . . that winter flights are probably unnecessary in cold localities when the temperature of the cellar can be *maintained* at a *uniform* point, and where it does not warm up much if any until it is about time to put the bees out permanently." Beg pardon. I think that a whole lot of us do not agree. Those are the localities where confinement is long and flights much needed. Besides, not one in fifty can hold uniform temperature. But, although we may think the flight needed, we are in doubt as to its advisability because uncertain as to its after-effects. [See footnote to another Straw on this subject.—Ed.]

"ONE AT A TIME is the law of the loose or the staple-spaced frame," says Geo. W. Philipps, p. 2:9. True for the loose, but I don't understand why it should be for the staple-spaced. I know I can take out just as many nail-spaced frames at a time as

Hoffmans. [My experience with the staple spacer was a good deal the same as that of Mr. Phillips. While I could handle *en masse* two or three frames I had to be much more careful, pressing the bunch of frames together for fear that one would slip away. With the Hoffman frames, propolis attachments will hold them together without any difficulty. It is right here that propolis is an aid rather than a hindrance.—ED.]

"If a new empty super is put below one nearly filled, the upper one is likely to be left unfinished," p. 291. I'd rather suspect an error in Huber's notes than to believe an unqualified statement of that kind should pass unchallenged in a Michigan State convention. I've done that thing thousands of times, and the work went right on in the upper super. If done when the flow is letting up, it may discourage work above; but even in that case I've known bees to keep on with work above, leaving the foundation untouched below. [While I believe that, generally speaking, you are right, doctor, on this point, yet I have had colonies do exactly the thing reported in the quotation. Every thing depends on how near we are to the end of the honey-flow. This is a matter that hinges somewhat on locality.—ED.]

YE EDITOR thinks Mr. Stewart states the exact position held by Editor Abbott with regard to bees freezing and starving, p. 303. Mr. Stewart holds that, when a single bee freezes, it does not die from freezing, but if not relieved soon enough it will die from starvation while still in a frozen condition. I think you are warranted, Mr. Editor, in believing the two agree if you have not carefully noted Mr. Abbott's later and fuller statement. He made a general statement something like saying, "Bees never freeze to death; they starve;" and that agrees with Mr. Stewart's view; but recently he has explained more fully, and, as I understand him, he believes that a full colony of bees never freezes to death, but a smaller number may. I think Mr. Abbott is correct. A full colony of bees in any climate where bees are kept does not freeze to death—indeed, *can not* so long as it has honey accessible, any more than a man can freeze to death in a house where he keeps stuffing fuel into a fire. But when the number of bees is too small, the fire can not be kept going, and the bees freeze to death.

"THE SHOCK of taking bees out of the cellar is an objection to cellar-wintering," p. 291. What does that mean? If it means the excitement of flight, don't outdoor bees have the same shock? [Huber says his report was very much condensed, and he probably omitted some modifying conditions. But there is a shock sometimes. A warm day is not a favorable one for taking all the bees out of the cellar. They get mixed up in their flight, and the weak ones are liable to be robbed if there are any outdoor bees prepared to pounce on them unprepared. In our experience it is the outdoor-wintered bees that are liable to give

trouble to the indoor weak colonies just put out. These latter for a short time scarcely realize that they are outdoors. In two cases this spring we had some weak colonies that were being badly robbed just because they had not discovered they were outside, and therefore needed to defend their entrance. Of course, the veterans know that bees should ordinarily be set out in the cool of the morning or evening previous—better the latter—in order that they may adjust themselves to their new condition.—ED.]

THE THEORY, page 303, that "bees freeze first and then starve," if it proves true, may be put to very profitable use. A bee entirely motionless must take many times as long to starve as when in an active condition. So put nuclei or even single queens in cold storage, after being well fed, and leave them till warm weather. [I am not sure but this is one of your unlabeled jokes. At all events, a good deal will depend on how cold the storage was. I would not think it practicable to go below 45, and then we should have conditions exactly as in an ordinary cellar. But it is not yet explained as to how bees can be frozen so stiff as to be crisp, and remain in that condition, no one knows how many days, and still be revived. Last summer we laid cages of bees on cakes of ice 12, 24, 36, 48, and even 72 hours. While they were frozen stiff they apparently showed no signs of life while in that condition; but in each case the warm sun would revive them so they would be as lively as ever. The experiments were not repeated; but this summer I hope to test the matter for a longer freezing. But I believe there is a point that might vary with different bees, when they will die from the prolonged chilling or from want of food. Whether it is starvation or cold that finally kills remains to be proven.—ED.]

I'M AFRAID, Mr. Editor, that you would desert the ground you occupy, p. 283, if you should spend a few winters further north. Bees need a flight when their intestines are loaded, whether that loading be caused by the uneasiness of a heightened temperature or by long-protracted confinement in an even temperature. You say when the temperature outside would not permit of flights from fall to spring there is not much need of such flights." Remember that, in a place of that kind, the confinement is longer, and it's the long confinement that's chiefly responsible for loaded intestines. If you had seen the way my bees spotted the ground when taken out in March, you'd hardly say "there is not much need of such flights." The only question is, whether the after-effects will counterbalance the good. [I accept in part your amendments. Now let me try again. When the temperature outside will not permit of flights from fall till spring, and the temperature inside with a dry atmosphere can be kept uniform, as in the case of Mr. Doolittle's cellar, then there is not much need of midwinter flights. There! does that suit you better? If I remember cor-

rectly you are not able to control the temperature—it rises and falls. On the up grade the bees are stirred to activity, with the result that they overload their intestines. You aver that a cleansing flight would be a good thing if you could be sure there were no bad after-effects. If the bees were returned the same day, after a good flight, on a safe-flying day, I do not see how there could be any bad effects. —Ed.]



Mr. G. A. Deadman, of Brussels, Ont., wishes to make the following corrections in regard to what he said concerning the little tin honey-boxes. The first mistake was due entirely to Mr. Deadman's manner of interlining "1 Dozen" with a leadpencil; but the other error was ours. He says:

In my note on page 315, you have me say regarding the de luxe tin boxes for comb honey, "Make them to hold not more than 11 oz. It should be one dozen; and a little further on it should be, "one to hold six sections would help to sell them in this quantity," not six dozen as you have it. These errors make the article unintelligible. Possibly fault of my typewriter.

In the *American Bee Journal* for March 23, Mr. E. E. Hasty has the following in regard to every man making his own hives and those of his neighbors. It is very seldom that any thing is put more plainly, and, withal, more pleasantly, than this:

Ah, dear Boss, don't you forget to remember that this whole nation (except the culprits) is tender and excited on the subject of trusts. If you ever seem to favor their side but a little there will instantan be lots of bees around your bonnet, if not in it. If you were a guest in the Russian royal family you would not argue very much in favor of the bomb-throwers—and you are in a somewhat similar fix now. The cabinet-maker has already "dressed you down" for saying that hives must be made with more accurate measurements than cabinet-makers and carpenters use—and here comes your friend and mentor to dress you some more for the logic in your first paragraph. If a man makes his own hives with profit it most decidedly *doesn't* follow that he can make for others with still more profit. He makes his own hives with his own hands; but if he wishes to enlarge in that line the vexatious question of hired help comes in and knocks every thing endwise.

While the *American Bee Journal* is always a welcome visitor at our desk, the visit of the editor himself, Mr. G. W. York, is a double cause of congratulation at the Home of the Honey-bees. He reached here on the 25th of March, returning the same day. I wish all bee-keepers could know Mr. York. He is a man of strong personality, endowed by nature with a peculiar faculty for making friends and yet retaining the respect of an opponent. He is enthusiastically on the side of all that counts for what is best; is a radical temperance advocate, and, in short, such a man as is greatly needed in a city

like Chicago. Mr. York is an Ohio boy by birth, having been born in Stark Co. in 1862. Bee-keepers visiting him in Chicago will receive a very friendly welcome.

A friend in an eastern city offers me some very good suggestions in regard to the general belief that comb honey is adulterated. He says, in substance, that the general public mean one thing by comb honey while we mean another. The common conception of comb honey is what bee-keepers would term chunk or broken honey, generally kept in pans, the honey running loose among the combs. It is hard to see why this could not be mixed with glucose as well as if the comb were absent. But bee-keepers restrict their idea of comb honey to that in sections. Newspapers are rapidly admitting that honey in *unbroken* combs is necessarily genuine. Instead of calling the mashed-up stuff "honey in the comb" he would call it "comb in the honey." This is well worth thinking about.

The oldest records we have of the use of honey as food come from Palestine, the land of the Bible. It was a staple article when Joseph was sold into Egypt, and references to it in the Bible are numerous. Even today the sales of honey are noticeably greater in our large cities during Hebrew holidays, as the chosen people use large quantities of it. Its keeping qualities suggest the manna of old, and many other ideas combine to make it an object of special regard to devout Jews. The following lines, copied from the *British Bee Journal*, may prove to be interesting in this connection, although the matter first appeared in a French journal, the *Bee-keepers' Bulletin of the Somme*, to put it in English. It will be noticed that the Arabs have made no improvement in the handling of bees since the year 1. Our older readers will remember Mr. Baldensperger as a voluminous writer for GLEANINGS.

Up to 1875, bees were in a wild state in Palestine, as swarms settled in cavities of rocks and hollow trees. The natives used to look for them and destroy them for the honey, which has always been a staple article of food among the Arabs. A few of the more intelligent had hives in the form of cylinders made of clay fine cut straw, and the bees in these were destroyed to obtain the honey. Things changed in 1875, when a European family (the Baldenspergers, of Alsace) commenced bee-keeping in movable-comb hives. Many of the natives have adopted this system, but have not yet obtained as good results as the Europeans, either in quantity or in quality.

Some time ago a correspondent of GLEANINGS expressed a desire to know how to detect adulteration in beeswax. As the letter in question was on business matters, and not designed for publication, no answer was given in print to this particular request. Thinking that he and many others may still be interested in this matter, I copy a few lines from the *British Bee Journal*, which seem to cover the ground very well.

A small piece of wax placed in the mouth and chewed should not adhere to the teeth, or become pasty, but

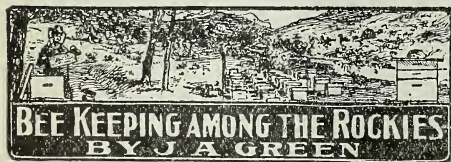
gradually disintegrate into small fragments, and be devoid of any special savor. This test is not sufficient if the quantity of the adulterant is small, in which case the specific weight should be ascertained.

Prepare in a tumbler a mixture of alcohol and water of sufficient density to allow a flat piece of wax of known purity to float on the surface, so that the upper surface of the wax is level with the liquid. A small sample of suspected wax is then melted to get rid of all traces of air, and then placed in the liquid. If it sinks or projects above the surface it is certainly adulterated.

Sometimes adulterants heavier and lighter than pure wax are used, so that when mixed in proper proportions the density of pure wax is obtained. In such a case the following additional tests should be made:

Put a piece of the suspected wax, the size of a small nut, into a test-tube, half fill with spirits of turpentine, and carefully warm over the flame of a spirit-lamp. If the solution is cloudy, or a deposit is thrown down, the solution is not complete and the wax is adulterated, for spirits of turpentine completely dissolves pure beeswax.

After this test, a piece of the same wax is placed in a test-tube half filled with alcohol and brought to the boiling point.



When melting beeswax on a stove, especially if there is any water in the vessel in which it is being melted, do not go away and leave it for even a minute. If you must go away, set the wax off the fire until you get back. The fire may be hotter than you think, or something may make you stay away longer than you expected to. A pan of wax boiling over on a hot stove may make a serious blaze. Last year neglect of this precaution cost one bee-keeper, in this valley, his dwelling-house and another a good honey-house with contents, including about a ton of honey.

#### PAPER HONEY-COMB.

Anent the manufactured-comb-honey canard, a St. Louis lawyer once told me that he had bought honey in that market, the combs of which were made of paper. He fully believed this, and I do not know that I succeeded in convincing him of its impossibility or improbability. He had presented the honey to a lady, and had accepted her report on it, though he had not eaten the honey himself, so I could not be sure on what grounds the verdict was based, though probably the trouble was that the comb was tough, due to having been built the season before, or to a "fishbone" base, caused by old or too heavy foundation.

#### HAULING BEES WITHOUT CLOSING THE ENTRANCES.

The matter of hauling bees without closing the entrances has been mentioned once or twice in GLEANINGS. I once bought a lot of bees sixteen miles from home. When two or three miles on the way back with

them, after having passed over some pretty rough roads I noticed that some of the old hives had come open to such an extent that the bees were beginning to come out and cluster on the outside of the hives. I was alone, the team was full of life, and entirely unused to bees; and for a time I thought I had a large-sized piece of trouble on my hands. After a little deliberation I concluded to let them alone, and I drove all the way home without a particle of trouble from them. They were black bees. Hybrids might have behaved differently. Probably, though, any bees that had been confined for a time while being jounced over rough roads would be perfectly gentle thereafter. I should not consider it safe though to start out with open entrances, though a thorough smoking might make it all right.

#### SUBSTITUTES FOR POLLEN.

If bees are not gathering natural pollen already in your neighborhood you can probably help them a great deal by feeding something to take its place. In many parts of the West there are no natural sources of pollen very early in the season, and brood-rearing can not be carried on as well as it might because of the lack of it. In such places a little meal fed to the bees will greatly encourage brood-rearing. If you use bran for cow-feed this is the simplest and cheapest thing for the bees. Let them work it over before you give it to the cow. Place it in shallow boxes slightly inclined. When the bees have worked it down to the lower end, reverse the box. If you do not feed bran, perhaps you can get something ground for them, or you can use cheap flour, mixing it with a little bran so that they can handle it easier. Of course your neighbors' bees will get some of it, if they are as close as is usual here, but perhaps you can induce them to feed too.

#### HIBERNATION OF BEES.

I had supposed that the hibernation theory died a natural death long ago; but L. R. Freeman, editor of the *Northwest Farm and Home*, made the following statements in an address at a horticultural institute, published in the *Western Bee Journal*. "Bees consume no honey during the winter in a climate where it is steadily cold. This I have ascertained by weighing the hives in the fall, and again in the spring. There would be a slight diminution in weight, which is accounted for by evaporation and by the death of bees. . . In a climate where the cold weather is uniform, a bee hibernates as much as does a hornet or a wasp." Evidently the proper thing to do is to put our bees into cold storage to save the twenty to thirty pounds of honey that is usually required to winter a colony of bees. In the same address we are told of a bee-keeper making a gain of \$1250 "about as cheaply as if he had found it." What wonderful things about bees we sometimes learn from the agricultural and horticultural writers!

## BRICK HONEY.

The success attained by The A. I. Root Co. in marketing granulated honey in small packages marks an era in the development of the honey market. This method of cutting honey, that has granulated in bulk, into small portions of uniform size makes it possible to market a small quantity of extracted honey at but little greater cost for the package, proportionately, than is needed for the larger quantity. In other words the cost of the package, which has heretofore been the great drawback to the sale of extracted honey in small quantities, is practically eliminated. The goal which I had in view when I made my first experiments, years ago, has been almost reached, though in a different way, from that which I was trying to follow. It not only permits the marketing of honey in a new and attractive form for those who are willing to pay an extra price for a fancy article, but it also caters to those who, with more moderate purse, want the worth of their money, yet are accustomed to buy only in small quantities. More than all this, I believe it permits the exploiting of the great confectionery field. I believe we shall not have attained the greatest usefulness of this idea until the children and other candy-users of this broad land are able to buy five cents' worth, or even a cent's worth of honey at a time. If we can make this practical, and I see no reason why we should not, a new market is opened for immense quantities of honey.



## EDUCATING THE PUBLIC.

What is the matter with the honey market this year? During the past season there does not seem to have been any territory where an unusually large crop was secured. There are not very many localities where the honey yield could even be classed as good. In very many places, including some of the best honey-producing territory, the yield ranged from poor to very poor. Yet if we look over the market quotations we find that from every point comes the report of a dull and quiet market, the supply ample, or greater than the demand. Why is this? It might make an interesting study to go into all the causes which contribute to this condition of affairs, but at present I am going to touch on only one of them, with a scheme that will at least tend to alleviate the evil. We all know that the public needs a great deal of education in regard to honey. It is evident that the belief is widespread and firmly fixed that a great deal of the honey on the market, including comb honey, is a manufactured and adulterated article. Many, even of those who sell honey, believe this, and foster the belief in the course of their business. The opinion is growing among those who have given this matter their attention that this mistaken notion is largely responsible for the lessened demand for honey. So far we have done but very little to counteract this evil, and it is time

we were doing something aggressive. Here is one plan that seems to me likely to help. Let one of our best men write a short but succinct and vigorous article on the general qualities of honey, explaining that the flavor and color vary according to the source from which it was gathered; that the whiteness of the combs depends on the kind of bees that made them, and upon the care taken by the apiarist to remove them from the hive as soon as finished; that the combs are straight and even because they are all built between separators, and because comb foundation was used. Make it clear that this is the nearest approach to artificial comb. Show that no two are exactly alike. Tell of the offer made by the National Beekeepers' Association and other responsible parties to forfeit large sums of money to any one who will produce evidence of manufactured honey. Also, tell where and how honey should be kept. This could be used in two ways. First, by printing it as a leaflet, a number of which should be enclosed in each case of honey sent to market, with the request to the dealer to send one out with each section of honey sold. Second, by printing it as a poster, to be placed beneath the cover of each case of honey. At present a sheet of blank paper is usually placed between the sections and the cover. This might as well be utilized by having something printed on it which would at least catch the merchant's eye and give him no excuse for remaining in ignorance. Then, if he chose, he could post it up where all his customers might see and read. At the least, he would probably call the attention of some of his customers to the statements thereon. This poster should be "set up" by some expert in composing display advertisements, so as to give due prominence to important points. This leaflet, or poster, might be printed by the National Beekeepers' Association, and distributed to its members at a nominal price, just sufficient to pay expense of distribution. It might, perhaps, make no better use of its money than to distribute a limited number free to each member who would apply for and agree to use them. At any rate it should have its sanction, officially expressed, in case it were thought better to leave it in private hands. For instance, all manufacturers of shipping-cases could supply a printed cover sheet at very small additional cost over the plain sheet they have been furnishing. It seems to me that this plan promises benefits out of all proportion to the small cost of carrying it out.

We have some excellent leaflets already. The one by Dr. Miller, "The Food Value of Honey," is particularly good. Much might be done by distributing these more freely. But we need something which, while covering more ground in some directions, is a great deal shorter and more concise, so that it can be read almost at a glance, otherwise many will not read it at all. The public is surfeited with advertising literature of all kinds, and we need something short and striking to attract their attention.



#### COMB FOUNDATION NOT ADULTERATED, AND WHY.

SOME time ago Prof. H. W. Wiley, a most strenuous advocate of a national pure-food law, and a man whom we believe is disposed to help bee-keepers and their allied interests rather than injure them, has given out a statement to the effect that the manufacturers of foundation were putting out adulterated goods. At first we thought we would pay no attention to it, as we did not think there was one bee-keeper in ten thousand who would believe it; but as two of our brother-editors have denied that such practice has been going on on the part of foundation-makers, it now seems pertinent for us to say that, out of between 300,000 and 400,000 pounds of foundation made annually in the United States, we will guarantee there is scarcely a pound of it adulterated. I say *scarcely*, because foundation-makers are buying wax from everywhere, and they might, in spite of their careful inspection, allow a single cake of adulterated wax to get in with the good, with the result that a single sample might show a very slight adulteration. The makers of foundation in this country know that, if they wish to ruin their business, and that right speedily, the quickest and easiest way to do it would be to begin to adulterate their goods. Paraffine and ceresin foundation are something that can be detected by bees and bee-keepers almost instantaneously. Again, the modern methods of making foundation will show up adulteration in the wax very quickly. Indeed, it is practically impossible to make adulterated foundation on Weed machinery. The reason why we *know*, is because we once *tried* making some sheets of wax and paraffine for the dental trade that called for it, and had to give it up as a bad job.

#### "SOMETHING THAT PROMISES BETTER THAN SHOOK SWARMING."

THE heading above is the title of an article by Mr. H. G. Sibbald, of Claude, Canada, in the *Bee-keepers' Review* for March. Whether the plan is new or not I do not know.

The article by Mr. Sibbald is very brief—so brief, indeed, that one must read between the lines in order to comprehend fully the whole plan. The trouble is, Mr. Sibbald presupposes that the practical bee-keeper would supply the missing links, and many of them undoubtedly will; but I was not able to until the second and third reading. But as I understand the plan I believe it to be an excellent one, and possibly shorter and better than the shook-swarm method. Well, here is my version of it:

When a colony is discovered building queen-cells, Mr. Sibbald says we are to move it off its stand a little to one side. I understand he means to move it sidewise so that it will be a few inches to the right or left of the exact position where the hive formerly stood, the entrance pointing in the same direction. In the place where the old hive No. 1 stood, hive No. 2, just like it, is placed. It may contain empty frames; but Mr. Sibbald prefers that it have two empty combs and a few frames with starters of foundation. As the relative position of these two hives will be changed about in this general manipulation, we will call the *old* hive with its combs, bees, brood, and all, No. 1, while the new hive, now on the stand of the old one, No. 2. Be sure to keep these in mind in order that we may not misunderstand the process that follows.

Well, the next step is to take out of hive No. 1, or the old colony after the shift, a frame of brood with queen-cells, making sure that we do not get the queen, and place it, with the adhering bees, between the two empty combs in No. 2, or the *new* hive on the old stand. In addition the supers and the bees which they contain on No. 1 are given to No. 2 on the old stand. In the two combs will be stored the pollen, thus preventing it from being carried into the supers. The result of this operation will be that the field bees from No. 1 will go into No. 2 on the old stand. The field bees now in No. 2, having been robbed of nine-tenths of their brood and their queen, but with good prospects of soon having a new one, and having very little brood to care for, will soon lose their swarming-fever and go right to work in the supers. They are not likely to build much if any comb in the partly empty lower hive. There is no laying queen below, and no particular incentive to build combs for egg-laying, for the virgin yet to be hatched will not be laying for two weeks. The old colony having lost its field bees will not have any honey coming in; and the young bees will naturally conclude there must be "a famine in the land, or that the season is over," as Mr. Sibbald puts it. As a natural consequence, they remove the larvæ from or destroy every queen-cell. The swarming-fever of both colonies, 1 and 2, has been entirely abated, and for ten days or even a longer period there will be no danger that the fever will come back.

At the end of this time the bee-keeper has the option of increase or no increase. If he desires the former he will proceed on the following plan:

#### THE SIBBALD NON-SWARMING PLAN FOR INCREASE.

Remember now that the old colony, No. 1, is a few inches to the right or left of the new hive, No. 2, now on the spot that the old colony originally had. For the sake of clearly understanding the method we will suppose No. 1 is on the *right*. Now jump No. 1 right over the new hive, No. 2, so it shall be on the *left* side, facing the same di-

rection, and the same distance away. In the ten days or two weeks that have elapsed, many of the young bees that were too young to fly when the first shift was made will now be field bees. These will naturally go into No. 2, because No. 2 is nearer the stand to which they have been flying, so that, again, No. 1 gives up its field bees to No. 2. If the apiarist desires to carry the process still further, in ten days more he can jump No. 1 back to the position it occupied after the first shift, or to the *right* of No. 2. Again, it, No. 1, will give of its field bees to No. 2. So the process might be repeated until No. 1 would be weakened clear down; but I should conclude, in the absence of any statement to the contrary, that there would be only one or possibly two jumpings, at the end of which time No. 1 is removed to an entirely new location when again it will give its field bees to No. 2. It might then be little better than a nucleus, but would rapidly increase to a fair colony for winter, while No. 2, which has been receiving fresh invoices of field bees, would become strong, and pile in the honey.

The only question that arises in my mind is whether or not these fresh accessions of bees would not induce swarming in No. 2; and, still further, would these field bees always go into No. 2 rather than seek out their old entrance? The strain of bees would have something to do with this.

So much for increase. When increase is *not* desired, the following is the plan:

#### THE SIBBALD NON-SWARMING PLAN WHEN INCREASE IS NOT DESIRED.

We now go back again to the point, ten days after the first shift was made, when No. 1 was moved from its old stand a few inches to the right. It will be remembered that, ten days before, we had given No. 1 a frame of brood with cells on it. If the old queen is a good one and we do not care to let the one in No. 2 hatch out or lay, we destroy these cells or virgin, if hatched, and put the frame of brood back into No. 1. But at this point Mr. Sibbald does not explain what he would do with virgins that may have hatched prematurely. Cells five or six days old at the time of the first shift would be liable to hatch out a virgin before the ten days were up. As will be seen I have taken it for granted that he would dispose of them.

We will assume, in this case at least, that the virgins have not hatched, and we have destroyed the cells and put the frame of brood back into No. 1. We take away hive No. 2 entirely, and put No. 1 in its place, or exactly the same place it *had at the very start*. The young bees and the brood will now have been added to the field force plus the old queen. Of course, the super should be taken off from No. 2 and put back on No. 1. No. 1, during the interim of ten days, has been under the delusion that there was a famine in the land, has destroyed its queen-cells, and therefore the swarming fever that had already begun to manifest itself ten days before has been killed out

simply by a shift of hives. The cells in No. 1 that were left have been destroyed by the bees without any act on the part of the apiarist; there has been no interruption in brood-rearing, or practically none, except the small amount that might take place owing to the stoppage, apparently, of the honey-flow; but as soon as the young bees begin to go to the fields the queen would commence laying as before. One would naturally suppose that the swarming fever would come on again. Editor Hutchinson suggests in his footnote that it may do so; but Mr. Sibbald says if plenty of super room is given it will not.

Once more, if the old queen is not desired, wait until the cell or cells hatch and virgin begins laying in No. 2. Kill the old queen and unite the two colonies as before direct-ed.

The particular claim for this method over shook swarming is that it does away with all shaking of bees—an operation that is unpleasant, to say the least. In shaking combs I have found that bees will often fly up and sting. This is particularly so of certain strains. If they are shaken out in front of the entrance, one is liable to trample on them during the operation, or to get bees up his pants legs. New honey is liable to be sprinkled all over the bees and upon the grass. Of course, this can be avoided by brushing rather than shaking.

Another claim for the method is that it does away with the destruction of queen-cells by the apiarist or the chance of his missing some; for the bees do all that work themselves far cheaper than any human being, and without a miss.

I have thus supplied what are, in my estimation, the "missing links," for I am satisfied that many of our beginner bee-keepers would not understand the method just as Mr. Sibbald gives it in the *Review*. Perhaps I have not given it strictly correct; but so far as I can see it dovetails with his instructions.

The more I think over this whole plan, the more I am pleased with it; and I do not wonder that Editor Hutchinson felt that he had made a "good scoop" over the rest of us when he secured the prior publication of the method. We certainly shall give it a test in our own yards this summer; and if it proves to be simpler and quicker than the "shook" plan, which is regarded with so much favor by our bee-keeping friends, Mr. Sibbald will, to say the least, prove a benefactor to his fellow bee-keepers.

He does not say that he would have hives exactly alike. This may not be essential; but it would be advantageous, I am sure; for the fresh field bees will be more likely to go to the hive nearest their old location if it has the same outside appearance as the old hive.

I shall be glad to hear from our subscribers as to what they think of the method; and if any of them in the South can give this an early test we should be glad to have reports at once.

## IN MEMORY OF CAPTAIN HETHERINGTON.

OWING to a lack of space we were not able to make mention before of one of the notable double numbers of the *American Bee Journal* for Feb. 23, which was also a memorial of the late Capt. J. E. Hetherington. The facts gathered in regard to this eminent bee-keeper are interesting and valuable. The main article is written by the captain's life-long friend P. H. Elwood, of Starkville, N. Y., also an extensive bee-keeper of many years' experience. For many years the captain ran almost continuously some 3000 colonies. He made his own supplies, and well he might, for he was a fine mechanic. Not only that, but he was the inventor of many of the useful appliances now generally recognized as valuable and in some cases indispensable throughout the bee-keeping world. I have already stated in these columns that he was the inventor of the no-drip shipping-case; of the tall section; the super-spring which has lately come into use, and now it appears that he was also first to make use of wires for staying up foundation, and subsequently secured a patent on the method. He was quick to see the value of inventions made by others; and while he was not a contributor to any of the bee-journals he was familiar with all that was written, and there was not an idea or method of value that he had not tested most thoroughly. So extensive was his business that it was simply impossible for him to write for bee papers, and, what was more, if he had the time to write such articles he could not afford to assume the responsibility of the voluminous correspondence that would naturally follow later on.

A few things in regard to the captain's life that have never been made public before are given in the *American Bee Journal*. Here are a few of them:

He introduced Carniolan blood simply to fight off the ravages of black brood. The prolificness of the queens, he said, kept up the strength of the colonies so that they were more able to ward off the disease.

For the last twelve years it is further recorded that he wintered his bees as well as farmers winter any kind of live stock. A year ago he took out one lot of bees numbering over 800 colonies, *without finding a single dead one*. If any one else has the science of wintering down as fine as that, the bee-keeping world has never heard of it. I consider the performance but little short of the marvelous, and yet that is a good deal the way this "prince of bee-keepers" did things. Perhaps a partial secret of his success may be explained by the fact that the captain believed in *ventilation and lots of it*. A picture is shown of one of his latest winter repositories, having two large ventilators at the top, communicating with openings through the floors over the bees. These ventilators were open except in the coldest weather. Mr. Elwood says of him that "he believed in abundant ventilation for bees." Certainly if ventilation were detrimental there would have been at least a few dead

colonies out of the 800 last spring. This feat is so very remarkable that I hope Mr. Elwood, if he knows the exact method the captain employed from start to finish, kind of cellar, size, ventilation, etc., will communicate the results to the public.

Again it is said of Hetherington that "he found bee-keeping dependent on luck for a passing existence: he left it a specialty founded on the rock of science, the peer of any branch of agriculture."

There have been various opinions as to the virulence of foul brood as compared with black brood. It is interesting to note that Capt. Hetherington said that he thought the latter was "twenty times as bad as foul brood." He has often been styled "the prince of bee-keepers," a title that was particularly appropriate, and certainly fairly won. Well, now, if the prince of bee-keepers thought that black brood was twenty times as bad as foul brood, no wonder the bee-keepers of York State have had a problem. The fact that they have accomplished such marvelous results in eradicating it is greatly to their credit.

Captain Hetherington was a man of the finest executive ability. Without fuss or flurry he would so manage his help that an enormous amount of work would be done in a given time.

He was a charming conversationalist, and one of the most genial men I ever met. I doubt if there ever was a man in all our ranks who could bubble over with such effervescing enthusiasm as he.

I will not attempt to go over his record as a soldier, brilliant though it was, because that has already been given in our columns. One of his comrades through the *American Bee Journal*, speaks of him in the most glowing terms.

MORE PERSECUTION FOR BEE-KEEPERS—  
MANUFACTURED COMB HONEY.

THIS time it is that otherwise excellent farm paper the Philadelphia *Farm Journal*. "Aunt Harriet" says, in her talk about employment for women, as follows:

Bee-keeping is pleasant and profitable work, and real honey is hard to get, in these days. Not only is the "honey" manufactured, but the wax cells, as well, are imitated; so that, even though you buy your honey in the "comb," you are as likely to get glucose as not. Therefore, fragrant honey, the real product of the bees, will always find a good market, and my women readers might be able to sell it through the Woman's Exchanges.

The above is simply astounding, especially when we recollect that this journal has a very ably conducted department for apiculture. Friend Selser, who lives in the same city, has explained to the *Farm Journal* people the damage they have done, and no doubt in their next issue they will do what they can to undo it. It is bad enough to be misrepresented by our enemies, but ever so much sadder when such blows come from our friends. May God help us in this never ceasing fight, for such it seems, against misrepresentations in regard to our industry.—A. I. R.



### PRATT'S "BABY NUCLEI."

Some of Pratt's New Kinks; Should the Honey-Producer Attempt to Rear his Queens or Buy Them?

BY E. R. ROOT.

A short time ago Mr. E. L. Pratt published a pamphlet on the general subject of "Baby Nuclei," in the latest style of the printer's art, a good deal after the style of the celebrated Roycroft publications. In this little work Mr. Pratt brings together all of his latest practices on this subject of miniature clusters of bees.

I have already explained in these columns how to get queen-cells and hatched virgins in quantity. This is easy. But up until lately it has been neither easy nor cheap to get the virgins mated. The problem is now satisfactorily solved.

In his introductory chapter he says that one small section of comb and ten bees, properly harnessed, will surround the virgin

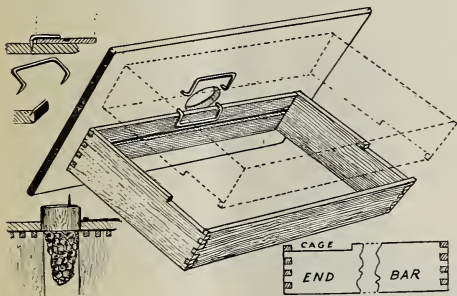


Fig. 1.

queen with all the environments tending to maternity flight; but that twenty-five or fifty will do better. Much over a small tea-cupful to each mating-box he believes would be a positive disadvantage. While one can use  $4\frac{1}{2}$  sections for frame, yet his ideal frame is of such a size that six of them will fit inside of a regular Langstroth frame. These "baby" frames have no ears or projections, but are secured to the cover by means of two bent staples.

Last season the Root Co. tried in its queen-rearing yards a "baby" nucleus box that is practically the same as the Pratt—so near it, in fact, that I think it but fair to say it is the same thing. The illustrations accompanying show its general construction.

The little hive consists of a box made of  $\frac{1}{4}$ -inch stuff,  $3\frac{1}{4}$  inches wide, 6 inches long, and  $4\frac{1}{2}$  inches deep, inside measure. The

cover is made of material of the same thickness, with V-shaped channel-irons driven over the ends into corresponding saw-cuts to prevent warping. Through the center of

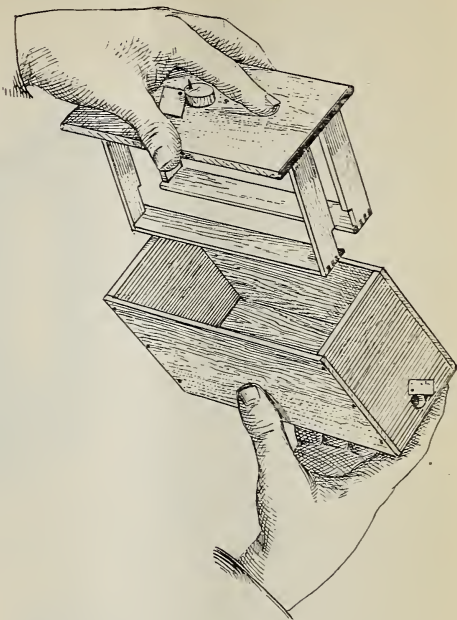


Fig. 2.

this cover is bored a hole of just the right size to admit a wooden cell-cup to which the bees have built a queen-cell. The frames, as explained, have no ears or projections on the top-bars, and, in fact, are nothing more nor less than four-piece sections  $\frac{1}{2}$  wide,  $5\frac{1}{2} \times 4$ , or of just the right size so that six of them will fill a standard Langstroth frame. If these little frames had projecting ears they could not be fitted into the larger ones, so other means must be provided whereby they can be secured in a hanging position. Mr. Pratt devised bent staples, using one of

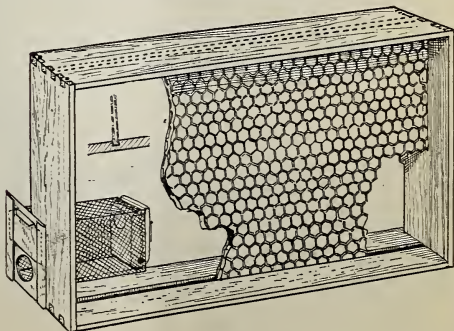


Fig. 3.

them at each diagonally opposite corner of the top-bar. We prefer to use one large one, the same projecting to the center line of the top-bar, for the reason that the

frames may the more readily be detached for handling. See Fig. 1.

These little frames, as we make them, have grooves in the top and bottom bar to admit a sheet of foundation, which is cut just the right size to fit. Six of these frames filled with foundation, and fitted into a standard Langstroth frame, can be put down in the brood-nest of a strong colony. When the foundation is drawn out and filled with honey the six frames in one may be cleared of bees, slipped out of the big frame, and secured to the cover by means of the bent staples as already explained. When in position they look like the cut shown in Fig. 4. The only points wherein the whole arrangement differs from the Pratt is in the employment of one large bent staple, in place of two, and the manner of preventing the cover from warping. The use of the introducing-cage will be explained later.

Having the little "baby" frames filled with comb and honey, and attached to the cover, we are now ready to fill with bees. A lot of the mating-boxes are thus prepared, and placed on the ground in two rows. Between these two rows is an empty hive-body into which several frames of bees have been shaken; but before shaking them they are smoked thoroughly so they will fill themselves with honey. They are then scooped up with a teacup, anywhere from 100 to 200, and dumped into one of these "baby" boxes. Each of the other boxes is filled in like manner. Of course, the tin slide over the

flight-hole is shoved over so as to close the entrance. The bees are then left this way for 24 hours, when a virgin queen is allowed to run among them. Or they may be given

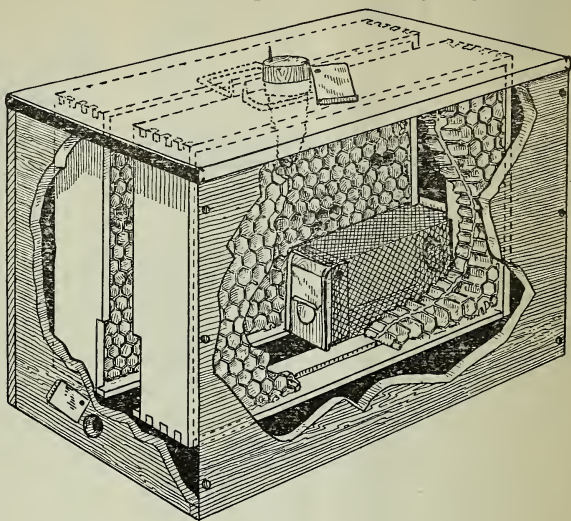


Fig. 4.

a queen-cell through the cover in the top, as shown in Fig. 4; or the queen may be introduced in a regular introducing-cage, which is shoved down between the end-bars as shown. It is proper to explain, however, that the latter is not the Pratt cage. Instead of letting the virgins run in with the chance of losing some, it may be found preferable to introduce them in the cage. Mr. Pratt explains, however, that, if the bees are vigorously smoked and then dumped into the little mating-boxes, and left



FIG. 5.—PRATT'S QUEEN-REARING YARD AS EQUIPPED WITH HIS BABY NUCLEI.

there for 12 or 24 hours, they will be in good humor to accept any virgin that may be given, and this is generally true. But the beginner may find it better, perhaps, to use an introducing-cage, erring on the safe side.

Our author explains that a swarm can be divided up into many little clusters; and the bees, when allowed to fly, of course will stay where they are placed. He also says that loafers hanging on the outside of any hive, where they will do nobody any good, much less themselves, may be scooped up with a teacup, put into these little boxes, and made to perform useful work. In any case, where the bees have just been taken from the queen they need to be kept confined from 12 to 24 hours in order to impress on them their utter queenlessness, and to make them stay wherever they are placed. One, however, could let the bees fly the same day, providing the boxes used were taken to some outyard where the queens may be mated, then brought back to the home yard, where the queens can be shipped out as fast as they begin laying.

In short, Mr. Pratt says, take bees from any place where they are most accessible, but do not take so many from any one colony as to ruin it entirely "*unless you elect to take the entire lot.*" *Italics mine.* This is a good point. Better break up a whole colony than to take a few bees from a lot of them.

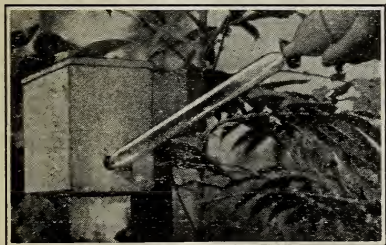


FIG. 6—HOW PRATT FEEDS SYRUP TO THE BABY NUCLEI.

In Fig. 5 is shown a view of the Pratt queen-rearing yards, photo taken by John M. Hooker, where Mr. Pratt has his mating-boxes in actual operation by the hundred. Some of them are placed on T-stakes, others on the ground, and still others on the fence, the object being, I suppose, to give the bees and also the virgins an opportunity to mark their own little homes.

In Fig. 6 is shown a method of giving one of these "babies" a small supply of food, not exactly with a baby-bottle, but by means of a glass tube and a rubber bulb. The syrup is drawn up into the tube, when the end is introduced through the flight-hole. A slight pressure on the bulb forces a small quantity of feed on the bottom of the box. If our friend keeps on improving his methods he will end up by merely turning a crank and grinding queens out by the peck.

This little book of Mr. Pratt's is worthy of careful reading, not only on the part of the queen-breeder, but of the producer of honey as well. And that reminds me that bee-keepers who produce honey only, tell me at conventions that they can not afford to rear queens. In this I think they are mistaken. By the new plan one needs to break up only one or two colonies at most, and rear all the queens he can possibly use for the home and out yards in a comparatively short time, and at a very small expense. I verily believe that the day for the use of two-frame nuclei, standard Langstroth size, for mating queens, has gone by. It is a waste of good money and time to use six times more comb surface covered with bees than is absolutely needed for doing the work.

#### WINTERING THE BABY NUCLEI.

We have never tried to winter these small boxes of bees, but I have just received a letter from Mr. Pratt, wherein he says he has been very successful in the wintering of these little boxes of bees, even outdoors. While that might be done in the mild climate around Philadelphia, it would not do at all in a colder climate like ours. There is a possibility that they may winter in the cellar if the temperature can be kept at exactly the right point. We'll try it next winter.

#### PUTTING UP EXTRACTED HONEY.

Flowers Impart Certain Volatile Oils to Honey which Gives it the Peculiar Flavor; Put up Immediately after Extracting to Retain Flavor or Aroma.

E. D. TOWNSEND.

From the August 15th, 1904, *Review* I copy the following: "In handling honey after it is extracted, we work on the theory that, the quicker it is canned after the impurities have separated, the better the honey. . . . Probably the greatest point in favor of canning honey as we go is the fact that not more than one bee-keeper in a hundred has a suitable place for keeping honey, so that, the longer it is left open, the poorer it gets in both body and flavor."

Since writing the above another season has passed—a season in which the weather was very unfavorable for the production of a superior article of extracted honey. Our crop was reduced by half, and what we did get was below the average as to quality.

But after producing good honey the next step is to extract and handle the crop in such a manner as to preserve the body and aroma, in order that it may be delivered to the customer in the best possible shape.

Our practice for several years has been to provide tanks large enough to hold a day's extracting, at least, for the honey is emptied directly from the extractor to the tank, without straining, by simply letting it stand over night. In the morning it is skimmed, and drawn off into cans from gates at the bottom of the tank until signs of scum begin

to flow. In this way we get the honey free from scum or particles of comb.

But in letting this honey stand over night we lose much of that beautiful aroma so apparent in honey fresh from the hive. All bee-keepers know of this exquisite aroma, so noticeable while extracting and when working over the hive, before it has been exposed to the air. We are told that flowers secrete volatile oil as well as honey, and that some of this oil is carried and stored with the honey, which gives it that delicate aroma we all strive so hard to retain. It appears that this volatile oil evaporates and passes off when the honey is exposed to the air for any length of time in open tanks; so if we want to retain this aroma we must *can our honey as fast as extracted*, even if it does contain a little scum. It is obvious that, *if we can retain this aroma*, the scum is of a secondary nature.

I will confess that my experience has been limited in this mode of handling honey; but what experience I have had has been quite favorable to this early canning. In fact, I have so much confidence that this is the correct principle for putting up extracted honey that I shall handle quite a large part of my 1905 crop, in this way. A small tank will be arranged with a fine muslin strainer; and as fast as the honey passes through the strainer, while it still contains the animal heat, it will be canned up air-tight. This will save quite a little in expense for tanks, and also take up less room in the extracting-house; but one will have to keep a good stock of shipping-cans on hand.

Another point, this warm honey will run through the gate of the tank much faster than cold honey, so the canning and weighing will not take nearly as long as with cold honey.

Now, Mr. Editor, can't we have a little discussion along the line of handling honey after it is extracted? I think some good would come from it, for I am thoroughly convinced there is no part of the production of extracted honey where so little thought and system are used as in this part of the manipulation of the crop. I have been in a good many bee-yards in this State, and I find there is no uniformity in the handling of honey. A good many leave their honey in open tanks, barrels, lard-cans, and, in fact (in some cases), any thing that will hold honey. Few have a suitable place to store honey, even if handled in an expeditious manner.

I have known some to leave their honey until it candied hard, thus causing them the extra work of remelting before they could put it up in shape for market. This, according to my ideas, makes the crop worth less, for the aroma will be lost; and unless it is done very carefully the color also will be affected.

In melting candied honey in 60-lb. cans, leave the screw-caps in place. This will retain the aroma, and prevent the honey running over on account of the expansion of the heat. Use a slow fire in melting, as the

honey may be spoiled. It ought to take three or four days to remelt a 60-lb. can of honey that is candied solid. Never think of allowing the water around the can to boil, or your honey will be ruined. If you use dry heat in melting, it ought to be a rather slower process than the water method.

Remus, Mich.

[So far as I can recall, the importance of having honey sealed immediately after extracting has never been particularly emphasized. There have been various hints and some slight references in the matter, I think. I am inclined to believe there is much in what our correspondent has said, for two reasons: 1. Extracted honey, just as it is taken from the comb at the height of the season does have a peculiar aroma that one does not ordinarily find after it has stood for a time in open cans; possibly this aroma is due to the unripeness. A little unripe basswood just from the comb I like; 2. There are many who prefer comb honey to extracted, urging that the former is sweeter, or has some quality about it that makes it taste better than the latter. Assuming for argument's sake that honey fresh from the comb has a certain aroma that honey long from the comb does not have, there is just one difficulty; and that is, how to get rid of the scum and dirt. So far straining does not seem to accomplish the result satisfactorily. For that reason large settling-tanks have been almost universally regarded as a necessity by extracted-honey producers. Now, then, if the honey be sealed in cans immediately, it appears to me that the scum and settlings would be more objectionable than the loss of a small amount of aroma. In other words, the looks or appearance would be a much stronger factor in selling or not selling the article than the flavor. We should be glad to hear from others of our subscribers, now that Mr. Townsend has opened the discussion.—ED.]

#### CLOSED-END FRAMES FOR WINTERING.

Not so Good in Severe Winters; Better in Most Other Respects; the Danzenbaker Frame Liked.

BY N. D. WEST.

In wintering bees outdoors in chaff-packed hives, with closed-end frames, I have noticed that, in severe winters, water and ice are more liable to collect on the inside of the end-bars, thus preventing the bees from going around the end of the comb. The moisture becomes more general all through the hive, and in severe continued cold winters bees do not winter as well outdoors as they do in open-end frames or in the Hoffman, which is open most of the way down. In a mild winter the closed-end frames winter bees even better than the open-end frames. Closed-end frames are better for cellar wintering. In the cool weather of spring and fall, bees breed up faster in

closed-end frames out of doors. I am speaking of frames about 17 in. long and 10½ deep.

In severe cold winters, with the open-end frame the moisture will collect on the outside of the frames, and on the inside wall of the hive, leaving the combs well ventilated, and all will keep in a more healthful condition. It is more essential that the hive be so made as to pack well at the end of the frames than the side of the hives. If the ends of the open-end frames are well packed in cold weather the bees are very liable to cluster against the warmer end of the hive, and near the top; as the weather gets warmer they will spread out over the combs, and draw back and cluster at the end as the day cools off. Such hives are better for wintering outdoors if the entrance is made at the side of the hive, and pack the other side, leaving the entrance side of the hive without any packing, or not very much if any. I speak from what I have seen of side entrances. I like to have the bee-entrance at the end of the hive, for hives that are to be wintered in cellars. The most important is, the hives can slant forward both summer and winter. Side entrances are better for wintering outdoors only with end-packed hives. Such hives should have a tray made as large as the top of the hive, with a burlap nailed on the bottom. Fill the tray with chaff—three inches deep is enough—*better* than more. It lets the moisture go up through. I would rather have but two inches of chaff than over three. Then over this I place a cap or hood to cover all, which gives at least three inches of air space above the chaff tray.

Bore two 1½-inch holes in this hood-cover. Bore one in the diagonal corner from the other, and cover with wire cloth nailed on the inside. Cover the hood with tin to make it sure not to leak, and you will have a good hive to winter bees in.

The hives that I have in mind have open-end frames about 15 inches long and 10 inches deep, inside measure. These hives want a bee-space over the frames in cold weather. When the freezing weather is over with, put an oilcloth between the brood-frames and the chaff tray to retain the heat for the benefit of the brood. The moisture will not trouble in warm weather if your hive is made right to keep out the rain.

Now, about the Danzenbaker hive with closed-end frames.

I have had but very little experience with them. I do find a few of them that are being used by apiarists where the most of their hives are of some other pattern. I find that the colonies are as strong in these hives as in the other; in fact, I believe they winter fully as well if not better. In cellars are the places where the most of them are wintered that I have noticed. I presume that, with plenty of upward ventilation, they will winter well outdoors in a suitable chaff-packed hive. I find them from place to place where I am inspecting apiaries. The apiarists speak well of them as a comb-honey hive. I believe they are good for

that. However, I find the frames are not the most convenient for me to get out to inspect the brood, etc. I haven't learned how to handle them. I find people are devising various ways for spacing these frames, etc. I'll try a few in my own apiary and see.

For me the standing Hetherington closed-end frame is the easiest one to handle when running an apiary for comb honey, especially so for an out-apiary, where the queens have to be found at any time of the day and all kinds of weather. At just such time as I may happen to be there I can find queens in such hives when I wouldn't think of opening a hanging-frame hive.

To apiarists I would say, use some good frame hive, and then learn well how to use it to get the best results.

I am very often asked the question, "What kind of hive would you recommend me to use?" To beginners I feel safe in saying the Langstroth, because they are a very good hive, and you can buy supplies and all the outfits for an apiary at any bee-supply house. Should you become *wise*, and want to invent something that will suit you better, you will know better how to do it after you have a little experience. For instance, this last summer I called at a place where the apiarist had cut all of his eight-frame Langstroth hives (about 300) down so they would take frames only six inches deep. The next day I took a train and rode about 25 miles, and there I visited an apiary where the apiarist had been very busy in sawing down through the ends of his eight-frame Langstroth hives, and putting in a strip of board so as to make his hives wide enough to hold 12 Langstroth frames. Both of these apiarists have been in the business for many years, and both were sure they had made a big improvement. However, the former was changing to produce comb honey, and the latter was changing to produce extracted honey.

Middleburg, N. Y.

[One of the strongest arguments that have been made in favor of any closed-end frame has been that it winters bees better than the open-end sort; but here comes one of the most extensive bee-keepers in York State, a user of closed-ends—a man who has visited many large apiaries in his official capacity as foul-brood inspector, giving it as his opinion that the open end makes drier brood-combs, and hence better wintering. I have long known Mr. West as a careful bee-keeper, and his opinion on the point is worthy of careful consideration.]

It is certainly true that the Hetherington closed-end frame, or what some call the Hetherington-Quinby, offers special facilities for finding queens quickly. Nearly fifteen years ago Mr. P. H. Elwood showed me how he could find queens on these frames with the greatest of ease. The outer case is lifted off, leaving the frames standing on the bottom-board. A thin-bladed knife separates the brood-nest perpendicularly at any desired point. The separation allows the

light to stream in *at both ends* as well as through the top; and very often Mr. Elwood showed me that it was not necessary to take the frames out at all, for these standing combs could be shoved along, allowing the light to stream through past the ends and over the tops. In fact, there is no other hive in the world that is more dissectible, and, I might say, expansible, than the one first devised by father Quinby and improved by the late Capt. J. E. Hetherington, mention of whom is made elsewhere in this issue.

After seeing this hive handled I was very enthusiastic about it; but after seeing the Hoffman frame handled I concluded that, inasmuch as nine-tenths of the hives in the country were of the Langstroth pattern, the Hoffman would be more feasible to adopt for such a hive. For that reason the Root Company introduced the Hoffman frame instead of the Hetherington-Quinby.

Many of our readers perhaps will desire to know more about the Hetherington-Quinby frame. They will find it fully described under "Frames, Manipulating," in our ABC of Bee Culture. In a word, I have felt about the Hetherington-Quinby hive a good deal as I do about the metric system of measurement—both excellent, but practically impossible of general adoption, as the old systems have become so thoroughly entrenched.—ED.]

## THE WINTER IS STILL THE PARAMOUNT QUESTION.

Bee-cellars Below the Surface of the Ground in Michigan; Occasional Low Temperatures will not Hurt the Bees.

BY T. F. BINGHAM.

We have heard of contagious or infectious disorders among bees; and while it might be well to consider them they are as nothing compared with the risk and trouble incident to the decimation of winter.

While bees do not freeze to death in Tennessee, Georgia, or Virginia, bad wintering is the bee-keeper's calamity there. The spring, though long, fails to bring to the ordinary bee-keeper strong colonies at the early and proper time, just as in Michigan. The fact can not be disguised.

Bee-supply dealers all over the Northern States are called upon to furnish hives that will enable the bees to go through winter and be strong in the spring. Hundreds of bee-keepers have experimented with all sorts of hives and all sorts of protection. Mild favorable winters and good honey have led bee-keepers thus experimenting to believe they had at last solved the vexed problem, only to find the next winter had dissipated their cherished hopes.

The winters of 1903 and 1904 found easy access to more than half the bees located on the self-same summer stands on which their ancestors had lived and died in the varying winters gone before; with the sad result that the worst had been realized.

There are some features incident to keeping bees warm in hives of every description in the open air. The combs are open at the edges, and in hanging frames open at the sides and top also, as if suspended in mid-air. This fact would not be of so much moment were it not for the fact that above the cluster equally open all around hangs perhaps four times the icy honey needed, on which hangs their only hope. One could, with an ordinary imagination, conceive of a plan presenting less reasonable hope.

While it sometimes happens that in trees and other cylindrical hives enough bees are carried through a long winter in such shape as to increase rapidly in the spring. The case in ordinary hives, especially those fixed for comb honey and civilized management, the case is different. One may buy expensive hives, weighted down with the choicest lumber, and feel that bees can't help wintering safely in such beautiful homes; and when spring comes, realize how fleeting, visionary, and transitory, bee life is.

A winter depository below the surface of the ground, so far as I can learn, offers the greatest immunity from winter depletion and absolute loss. Such proved to be the case in the hard winters just passed, and it is reasonable to presume that they will continue to do so.

It seems strange that bee-keepers cling so persistently to the methods of fifty years ago in wintering, when in hives and fixtures they are up to the best methods advertised. It is a well-known fact that bees do not winter as well in modern hives adapted to section and extracted honey. Such being the case, why not modernize or civilize the plan of wintering as well as honey-raising?

My experience leads me to favor a cellar entirely below the surface of the ground, partly because it is below the wind, and so is better situated to escape the frequent changes in temperature; also that, as the earth as a rule, in cold snowy winters, freezes but little, so remains at a uniformly medium temperature, greatly assisting the bees in keeping the temperature of the cellar above the freezing-point. It is well here to explain or say that no cellar above which is kept no fire, in Central Michigan, will long remain above freezing. The bees, with the other reasonable safeguards, enable almost any underground cellar, even with abundant ventilation, to remain above freezing.

There is some question whether an occasional frost in the cellar in which are bees is a disadvantage. Some have maintained that in cellars having no ventilation frost would be objectionable, and it is reasonable to suppose, as the hives would be likely to be damp or wet, that it would; but in cellars composed of Portland cement, and thoroughly dried out before the bees are put in and abundantly ventilated, no injury is done the bees if now and then the air becomes cold, even to frost, occasionally, just as would be the case were they on their summer stands in frosty November nights.

My cellar has shown a temperature about freezing during the last two weeks in January and the first three in February, and I am not worried about them. I visit them once a week with my lantern, and clean off the bottom-boards and sweep up the floor, taking note as to their stillness and the dead bees I sweep up. The light and noise arouse them, and they set up a slight murmur of appreciation all around, as much as to say, "We are glad you came—please come again." The death-rate for the three weeks above mentioned was about the same each week, and the temperature about the same. If one of you bee-keepers who winter bees in the open air could step into my cellar, out of the two feet of snow in my yard, you would realize how vastly more reasonable it is to keep them thus than to trust them in the wind and snow incident to summer-stand exposure. But that is not all there is of a cellar for bees. Such a cellar, dark, cool, easy of access in summer, is a great convenience. In case of a number of swarms clustering together they can be put in as many hives as you wish, and set in the cellar half an hour to demonstrate how many have queens; and if not all, the missing one can be quickly supplied.

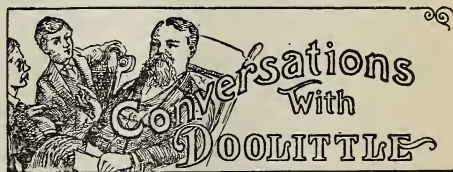
I mention this as it has often been suggested that all old queens be clipped; and while it has not generally been said that swarms having clipped queens usually cluster together, it may be well to arrange so that, if they do, they can be so managed as to keep them from going to the woods. Such a cellar will pay any man 25 per cent on the cost of it every year, and last as long as he is likely to use it. It will be said that a cellar can not be made that will be dry in any other than sandy soil. Practically I do not know; but if Portland cement will hold water in a cistern it is reasonable to presume that it will also keep it out of a cistern. I have no doubt that a Portland-cement cellar can be made in well-drained clay soil just as well as in sand. Were I living in a clay region the experiment would be made.

Farwell, Mich.

[We constructed a cellar somewhat on Bingham lines—a sort of cistern under the ground with a building on top. The sides of the cellar and the ventilator were exactly the same, and yet we were not able to secure as good results as did Mr. Bingham, and why? Our brickwork did not keep out the water as it should have done, or rather, perhaps, it is more correct to say the drainage was bad. A cistern built in a sandy soil would be perfectly dry, and the only moisture would be that from the breath of the bees. With a dry cellar, and plenty of ventilation, perhaps one can allow the temperature to go down almost or quite to freezing without serious results. I question very much whether it is possible to make a perfectly dry all-underground room in a clay soil, even if the walls be well cemented. While all cisterns will hold water in our clay

soil, yet I have noticed that, when the water was all out of these cisterns, the natural seepage of the soil from without would force its way through the bottom and sides; and yet that outside seepage of hard water would stay out when there was a pressure of soft water inside.

I wish to indorse the sentiment that a dark cool cellar is a good place to put bees that are mixed up in swarming time. It is also the best place in the world to put a colony or nucleus that is being robbed out. We will say there is a nucleus or weak colony that is full of robbers. Carry the whole thing downstairs, robbers and all. Keep them there four or five days. Possibly it might be well to give them a little smoke to stop possible fighting; then when they recover from the effects of it they will begin to make up an entirely new family. When taken out, several days after, the robbers as well as the robbed will be all one colony, and, what is more, what was once a nucleus will be a fair colony to defend itself. —ED.]



#### TEMPERATURE FOR BROOD-REARING.

"Good morning, Mr. Doolittle. Can you tell me what is the right temperature for brood-rearing?"

"Well, Mr. Brown, I can tell you of some experiments I have made along the line of finding out in the matter."

"But I mean in the spring of the year, when we have cold frosty nights."

"Do you think it requires a higher temperature at that time?"

"I do not know that it does; but I know it is necessary to contract the hive and preserve all the warmth from the bees in that contracted hive possible, to secure the best results."

"There is no doubt about the wisdom of keeping the bees as warm as possible, but that contracting part may not be advisable. We will talk about that later on. First, I want to say that by several tests during nights when it was cold enough so that ice was formed on ponds of water as thick as window-glass, I have found that the bees would not allow a temperature lower than 92° in the center of the brood-nest."

"What! as high as that?"

"Yes; and that with colonies so weak that they could hold brood in only two or three combs; and the strange part of the matter is, the strongest colonies did not keep the temperature more than one or two degrees higher."

"I did not suppose it required quite so high a temperature; and now I believe all

the more in the contracting plan for early brood-rearing. But don't touch this part of the matter unless you wish to."

"I do wish to; but before doing so I wish to say that, with the mercury up to 92 to 95 in the shade in July and August, my experiments with a self-registering thermometer prove that 98° is as high as the bees ever allow the temperature to go; so that we have between 92 and 98° as the proper temperature for brood-rearing, at all times of the year. This answers that question about the right temperature for brood-rearing."

"So it does, and I am glad to know of this. I should have said 10 to 15° lower."

"And so should I had I not conducted these experiments. But if you will think a moment you will see that, if a temperature of 80° were right, the brood must of necessity be injured by a rise to 95 in the shade, for no extra amount of fanning at the entrance could keep it down to 80, hence the brood would perish with heat. But from the cold part the bees seem able to keep a temperature of 92 in the brood-nest with its going many degrees below the freezing-point outside the hive."

"Then you think that a temperature of from 92 to 98° is always maintained inside the *hive* when brood-rearing is going on?"

"No, I did not intend to convey any such thought as that. It is inside the *brood-nest* or inside the cluster of bees that this temperature is kept."

"But does not the hive answer the same purpose for the bees that a house does for us as to keeping the brood warm?"

"No. Here is where many make a mistake. It is well to have the hive as tight and warm as possible; but it is the *crust* of bees on the outside of the cluster that holds in the warmth and allows that inside to be maintained at the even temperature of 92 to 98°; and it is only when the bees come out to where they touch the sides of the hive that the walls of the same act as a hive or house for the temperature inside the cluster; and if it is cold outside, even then this crust of bees forms against the wall of the hive so no cold can penetrate inside of the cluster."

"But where dummies are used do they not confine the heat to the cluster?"

"No, no more than the hive does. I used to think just as you do—that it was a positive necessity to shut each and every colony on just as many combs as they had brood in when spring opened; and as they got these filled with brood I added a comb at a time to this brood-nest, moving out the dummy each time I put in another comb till the hive was filled, and rather gloried that, by this constant attention and extra work on my part, I was enabled to get more bees and honey in a season than I otherwise could."

"And are you not of this same opinion still?"

"Well, hardly."

"What changed your mind?"

"An old bee-keeper came along, and, aft-

er seeing me go over a few hives as you have been doing and recommending, said, 'Do you think that board is any warmer than a comb?' I said, 'Yes.' He said, 'Allow me to put this comb in place of that dummy, and you watch this hive as you go along over the hives in your work, just moving out the comb every time, the same as you do the dummies, and note results.' I did; and as I saw no difference in favor of either I tried more and more hives with the comb in place of the dummy till the result led me to leave all dummies out of hives, only as I wish to use them for some purpose of contraction otherwise than to advance brood-rearing. The 'crust bees' are the ones which hold the temperature inside of the brood-nest, and all the hive does is to help to keep the little heat that gets outside of this crust from passing rapidly out into the open air."

"That is something hard for me to believe."

"Undoubtedly. It was for me till my experience drove me to it. I once cut a tree having bees in it, in which the bees did a thriving business for several years, according to the blackness of the combs and the number of old cut-down queen-cells there were on the combs, and yet the bees had two entrances into their cavity or hollow in the tree. The entrance at the bottom was about three inches in diameter, and the one at the top, above the combs, was a rather long hole giving a much larger opening than the one at the bottom."

"Well, that beats me."

"Yes, and that one thing was what cured me of running out every cool night and contracting the entrances to the hive, or shutting them entirely, and then going out in the morning to open them again. But it did not cure me till I had carefully tested the matter by closing a part during one season, and leaving the rest open all the while."

"Do you pretend to say that such contracting or closing of entrances does no good?"

"The result of the trial with half the yard in one way and half in the other showed no advance of either above the other, and so I turned my attention to something that did show some gain for the effort put forth."

"Then you would not even close entrances with sawdust during the spring of the year, as the editor of GLEANINGS told of Mr. W. L. Coggs shall doing?"

"My experience says it would not pay me to do so, but there is no law against your trying it if you think otherwise. Only give the matter a fair trial with half of your colonies left without this extra work put upon them."

"Well, I will try it. But now I think of the matter, I have been in the habit of using dummies on all my colonies; and had it not been for this talk I would have contracted the entrances of all. I now see that such a course is not the thing to ascertain

for certain which is right. But I must be going now."

"Before you go I wish to leave a thought with you; and when you solve it (or any other reader of GLEANINGS) just tell us how it is done: A weak colony, one weak enough so there are bees between only three combs, or what is called a 'two-space cluster,' will have brood on both sides of the center comb, and in one side of one or both combs next to the cluster, with practically no bees on the other side of the comb (or away from the cluster), so that there is only the septum of the cells or comb between this brood and the cold empty space on the other side; and yet this brood will be brought to perfection without any bees or any warmth from any bees in and about the cells on the opposite side of the combs. I have seen such cases many times, and it has always puzzled me; and I doubt not but all close-observing apiarists have seen the same during a spring after colonies have wintered poorly. The colony having only 85 bees and the queen, which built up to a good colony and gave 5 sections of honey, which I have spoken of several times in my writings, had brood only in the cells on the inside of the two combs between which they clustered; and yet they held and perfected this brood during many nights when there was a heavy frost—so heavy that the ground and grass would be all white in the morning, and the young bees emerged from their cells in about the usual time of 21 days from the laying of the egg. This thing has puzzled me greatly, when all of my other knowledge goes to show that it requires at least 92° to perfect brood properly."

Lands. They came out with a rush, and did not pay much attention to my smoke.

"I went to the old place to see how many bees were returning. There were about ten or twelve to a stand of Italians; but three times more of Holy Lands, and hardly any goldens. They did not stay longer than about ten minutes, and I saw them all returning to the new location—at least all the Italians and goldens. At 3 P.M. some of the colonies on the new stands were working, but no bees returning to the old places. I will not say that it works as well with Holy Lands, but it worked successfully with the others. On the third day the weather turned cooler and the bees did not fly."

Bees can be moved in this way almost any time during warm weather when bees are flying, if it is not too hot. The entrances are only slightly stopped with moss or green grass, and in very warm weather a piece of section placed under each corner of the cover affords ventilation. There is no danger of suffocation, as the bees can easily free themselves at the entrance. When they gnaw out, the obstruction causes them to mark their location, so very few bees go back to the old one. This obstruction should be partly left when the entrances are opened the second day. In many cases it is hardly necessary to make the extra trip for that purpose.

I think it unnecessary to leave any colonies in the old yard to catch returning bees. If they find nothing but the bare places where these hives used to stand they will be more apt to remember the hive they came from, and will return to it.



#### OPEN-ENTRANCE MOVING.

Moving bees with open entrances, long or short distances, proved unsatisfactory in our experiments. If it can be done, the danger of accidents is too great to admit the use of the method. It may work with gentle bees, weak colonies, and the right weather conditions. Strong rousing colonies would cause trouble, for they could hardly be kept in the hive by smoking the entrances. It would simply be out of the question if the bees were cross or the weather were such as when even gentle bees are irritable. Some of our Southern strains of bees can *not* be moved with their hive entrances open. Nothing but a closed entrance will keep them in when their hive is handled. Some Holy Lands and Cyprians, and their hybrids will rush out in spite of the smoke. If much smoke is used it irritates them the more. Smoke causes them to rush out of the hive instead of keeping them in. Just imagine a wagonload of forty rousing colonies of these bees! An attempt to move them with open entrances would end most disastrously.

I have tried the plan of moving with open entrances several times. It is not practical, and the risk involved is too great. The assertion that one man with a smoker can keep the bees quiet in the hives while the horses



#### MOVING A SHORT DISTANCE.

After last year's experiments the following plan was adopted as a satisfactory and practical one. It was tried recently on one of my own apiaries of 50 colonies which was moved about a hundred rods, and I am indebted to the manager of my apiaries, Mr. H. C. Sattler, of New Braunfels, Texas, for faithfully carrying out this plan. He says: "Tuesday I moved that bee-yard, as we had a nice sunny day. At 9 A.M. I stopped all the entrances with moss. The bees did not fly earlier, as the morning was cool. Then we moved all the colonies to the new stands. We did not leave a few weak ones in the old yard, as I overlooked that in your outline. Next day, at noon, I opened all entrances, smoking each one well. The bees came out and flew around, and marked their new location, except the ten colonies of Holy

are hitched and the load is started would not hold in the majority of cases. It is impossible for one man to guard the entrances of forty or more colonies after they have been aroused by handling. I tried this myself one time, and it was impossible for two others to hitch the team. It could not be done until all the entrances were closed with rags that happened to be at hand, and even then the horses were stung by mad bees. This alludes to day moving; but my advice is strongly against moving bees with open entrances either by day or night.

#### BLACK BEES.

My bee-keeping began with common black bees. New queens were always raised from the mother of the best colony in the yard—the one producing the most honey. The result was a yard of black bees bred up to a high standard. The large crops of surplus proved that. Editor Root, while visiting me, was surprised at my blacks, at their storing qualities and their extreme gentleness. I did not own a veil then, and had not used one for over six years. A serious charge against the blacks generally is that of bad temper; but in mine this seemed to have been bred out. They were also more prolific than one would suppose. This can be accounted for, perhaps, as the result of select breeding, using the queens of the best and most prosperous colony to breed from. The character of prolificness possessed by such a queen would predominate to a great extent in the succeeding offspring. Thus much can be done by judicious selection with pure stock. If the drones could be controlled in mating, a much more rapid progress could be made.

Blacks are excellent for comb honey, as they cap their honey whiter than most other races. The supposition that blacks do not store late in the season did not hold with my bees, for they stored later than three-banded Italians that were introduced some years later. The Italians were all right for a single honey-flow, but they clogged their brood-nest and crowded out the queen, with the result that the colonies were in a depleted condition for the next honey-flow. The blacks, on the contrary, stored more surplus. My honest belief is that I had better success with the pure selected black bees than has been the case since Italian blood was introduced. In some respects the pure blacks were better than the pure Italians. This was especially true in a locality with several flows. With the introduction of the Italians came hybrids and some very cross and worthless ones among them. A few particular ones were very good—some of them even better than the best of the blacks; but it lasted only for those colonies, or during the length of the queen's life. The offspring from such a hybrid queen possessed such varying characteristics that selective breeding in a satisfactory way could not be accomplished as with pure stock. Therefore the yard of hybrids as a

whole was not as good as the yard with the select-bred blacks. The improvement in a race of bees is, therefore, much easier and more certain with a pure race to begin with than if a strain is composed of several crosses.



#### IN MEMORIAM.

Resolution passed by the stockholders of the California National Honey-producers' Association at their regular annual meeting, Feb. 15, 1905.

Whereas, it has pleased the great Ruler of the universe to remove from our midst our esteemed president and brother bee-keeper, Geo. W. Brodbeck, therefore be it resolved that we sincerely mourn our loss, and will long cherish his name and remember his many kind deeds and persistent endeavors in behalf of ourselves and bee-keepers at large. We hereby tender our sincere sympathy to the bereaved. May the softening influence of time remove the grief and simply leave happy thoughts of his kindly life.

GEO. L. EMERSON,  
T. O. ANDREWS,  
G. F. MERRIAM, Com.

SOMETHING FROM A MISSIONARY IN THE BARBADOS; WHY A NEWLY INTRODUCED QUEEN IS LIABLE TO BE BAILED.

In an issue in November, I notice reference in the department "Our Homes" to unkind criticism of this department. It may possibly interest you to know how I became a bee-keeper.

One day I called on a parishioner; and as he was long in making an appearance I took up a periodical from his table and dipped into it. It was a copy of GLEANINGS, and I was sorry when I heard my friend coming out. However, I borrowed every copy he could lend me. I became a bee-keeper in consequence, and was led thereto not only by the interest the periodical aroused, but also the wish to belong to a fraternity represented by such an organ. I have taken the greatest interest since in getting the periodical widely read, both in and out of my district, and feel it to be a help to me in my work as you kindly meant it to be.

You sent me an untested red-clover queen in October. She proved to be purely fertilized, and I am wondering whether you sent me the best queen in your yard or whether she represents the standard. Whenever I took out the frame with her on it she went on laying as unconcerned as possible. She got killed by accident a few weeks after I had her; but she has left a daughter that

takes after her in this matter. The oldest bee-keeper on the island told me the other day he never had a queen do this. A strange thing happened when I introduced her. I released her 52 hours after placing her cage in a queenless hive. I saw the bees would accept her, but could not stay to see her emerge. About four hours after, I returned and found her quite at home on a frame. I took it out and carried it off to look at her in better light. While doing so I noticed the bees grow suspicious of her, and ten seconds after they were balling her. I smoked them promptly, and she ran up my sleeve and was gone when I could turn my attention to her. I spent an hour in searching around for her, and concluded that a frog had snapped her up on falling to the ground. Imagine my surprise when, on going to the hive later, and mournfully taking out the frames, to find the queen quite hearty and at home. She evidently flew off my sleeve, and, although she had been put into the hive at night, had never come through the entrance or seen the outside, yet she found her way back, though she took flight several yards from it. But why did the bees attack her? I take it that, away from the hive, and in the open air, the wind blew off the hive scent she was acquiring, while her original scent remained. And this the smoke destroyed, making her acceptable on her return. I wonder if this is the correct view, or what was it that made them accept her, then ball her, then take her again?

W. G. HUTCHINSON.

Boscobel, Barbados, Feb. 8.

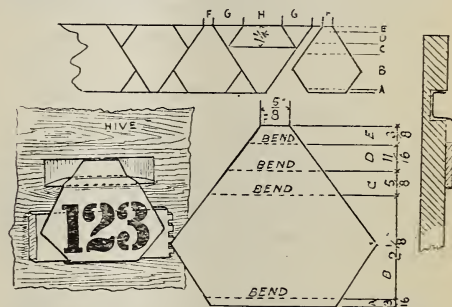
[Thanks for your very kind words, dear brother. My impression is that the queen was balled because of the disturbance among the bees caused by removing the frame. In fact, I have had the same thing happen several times to a queen just introduced. It has been recommended to leave the hive undisturbed for a couple of days, say until the queen has become perfectly familiar with her surroundings. At the same time, I think it a pretty good plan to keep a little watch of things lest the queen be balled. If I opened the hive at all I think I would look in only just enough to get a glimpse of the queen and see she is all right, and wait till later before taking the frames out, etc. We should be glad to have some report in regard to the honey yield in your island. Can you tell us how it compares with Cuba, where such wonderful crops are often secured?—A. I. R.]

#### A HANDY NUMBER-TAG AND RECORD-HOLDER.

Along the line of "winter preparation," some of your readers may be interested in the hive-numbering tag which I and some of my neighbors have been using with much satisfaction. Taking a piece of sheet metal (preferably galvanized steel) four inches wide I cut it into pieces of the shape and size indicated in the accompanying sketch, and by the use of hard-wood blocks bend them as indicated, so that the upper portion

will fit tightly into the hand-hole in the body of the hive, and the face be about  $\frac{1}{8}$  inch from the face of the hive. There is room for three figures  $1\frac{1}{2}$  inches high on the face, and the space between it and the hive is very convenient for slipping in a piece of broken section or cardboards for records or a memorandum.

When properly shaped the pressure in the hand-hole is sufficient to hold it in place without the use of nails, staples, or any thing of the sort, and it can be quickly applied, removed, or changed from one hive to another without the use of any tool; and,



when removed, there is nothing left to disfigure the hive or interfere with handling or piling. They are so close to the hive as not to interfere with the use of a telescope cover, and can be applied to any part of the hive having a hand-hole.

In storing my hives and supers in the fall I slip one of these tags in place in each pile, and then a piece of broken section, properly marked and slipped in place, always shows at a glance what each pile contains, whether empty bodies, empty supers, brood-combs, drone-combs, bait-sections, sections filled with foundation, etc. L. R. FERGUSON.

Harvey, Ill., Feb. 20.

[I am not sure but you have devised a good thing in the way of a numbering-tag, and it may be worth our while to get up something of the kind for the general trade.—ED.]

#### THE BASSWOODS IN TEXAS NOT SUITABLE FOR MAKING SECTIONS; HONEY OF EXCELLENT QUALITY.

I see in GLEANINGS, page 117, that Mr. J. A. Green says basswood is abundant in Texas, and that manufacturers of sections will please take notice that these Texas basswood forests will at least put off for a while the time when there will be no more basswood sections. Now, Mr. Green, I for one think you have been misinformed, for I live in the heart of the Texas basswood country, and I don't believe there is enough basswood in Texas to supply the Root Co. for one year. There is a quite a lot of basswood in some places in Texas; but let me tell you that three-fourths of our basswood is unfit for sections. It is either crooked, hollow, or knotty; the wood is red, not white; very few good sawlogs. As for hon-

ey, it is fine, very white, of fine flavor; but on an average it fails to yield nectar about two years out of five. H. A. MICHELL.

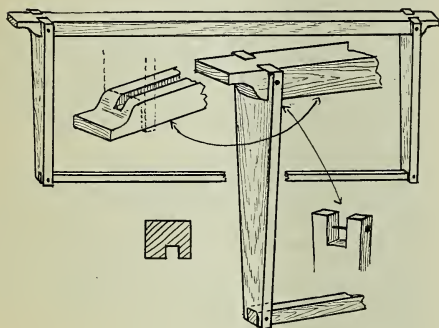
Shepard, Tex., Feb. 20.

#### SELF-SPACING FRAME STRONGER THAN THE HOFFMAN.

In GLEANINGS for Feb. 15 you say you are anxious to know about those frames, together with my objections. I send you under separate cover a sample of an end-bar similar to the one I used on the English standard frame (my own design) in 1881. The principal objections to the Hoffman that I find in my own use are:

1. Splitting off the shoulders of the end-bars.
2. Breaking off the ears of top-bars.
3. Frames not rigid.
4. End-bars too thin to hold nails.

This is prevented in my end-bar, first, by nailing through; second, by carrying the top-bar through the end all one thickness, and also obviating splitting, as in your way of nailing; third, the method of putting the top and end bars together.



I would myself prefer the old square bottom-bar. The objection that bees build to one side of it is more than offset by the fact that they build clear to the bottom, nine out of ten, while in the thin wide bottom-bar nine out of ten are not; but, as a matter of fact, that is not one of the crucial points.

The points that this end-bar has over the Hoffman frame are, first, smallness of contact; second, and most important, much stronger, no liability of splitting off because of the nailing holding the wide part. Making the slope on the end of the top-bar does away with the staples, the worst factor in the splitting of the end-bars.

H. FITZ HART.

Wetumpka, Ala., Feb. 24.

[I do not quite see how this particular construction of frame is stronger than the Hoffman. The end of the top-bar is almost cut off by the side notches; the projection, therefore, is no stronger than at the weakest point—the neck that slips between the prongs on the end-bar—not half so strong as it looks, in fact. We have made

frames in this way; in fact, our all-wood frame that we have made for years, and are still selling, has this principle. But it was our experience that the two side edges of projection were liable to split off, either in shipping or nailing. The beveling on the under side of the top-bar would hardly be as good as a staple, as the bees would glue it to the rabbet much more securely than they could the staple to the rabbet. We tried this plan in a limited way a few years ago; and while it was better than having a top-bar project full length, it was not enough better, in our opinion, to warrant the change.

The end-bars to the present Hoffman frames are made considerably thicker now than they were a year ago. It is now possible to nail this particular frame either way—through the top-bar downward into the end-bar or in the usual way. Or, if it is preferred, drive a nail through the top of the end-bar, as shown in the sketch above, taking in the neck or tenon of the top-bar.—ED.]

#### YELLOW PINE FOR BEE-HIVES; INCREASE BY THE SOMERFORD METHOD, ETC.

1. Will bees stay in hives made of yellow pine?
2. To increase by the Somerford method, can I cage the queen of a colony and hang this cage (containing the queen) in the hive, and expect queen-cells started?
3. All bee-keepers around here do not practice giving the super of the old colony to the newly hived swarm; but if I attempt to do so, would I not get more honey if I left it where it was, namely, on the old hive?

Findlay, O., Feb. 11. W. H. DREYER.

[1. Bees have no objection to yellow pine, so far as I know; but the wood for hives is not as acceptable to bee-keepers on account of its weight, and disposition to ooze out pitch.

2. Queen-cells would undoubtedly be started if the queen were caged. A colony with a caged queen will behave precisely as if it had no queen in the hive at all.

3. Better give the super to the swarm. The old colony would be too weak to do any thing in the sections.—ED.]

#### BEE-STINGS AND RHEUMATISM — ANOTHER TESTIMONIAL.

When I commenced bee-keeping a sting was a serious matter to me. I was subject to attacks of rheumatism. In time I became immune to bee poison and also to rheumatism. Among a number of bee-keeper friends I don't know one who is a rheumatic. Might it not be that frequent injections of formic acid give immunity to rheumatism in all cases?

JNO. D. GILL.

Phillipsburg, Pa., Mar. 1.

[Friend G., it seems pretty well settled that bee-sting poison is a remedy for some kinds of rheumatism; but we have had so many reports to the effect that it had no effect, we fear we shall be obliged to answer your question in the negative.—A. I. R.]



And the Lord God formed man of the dust of the ground, and breathed into his nostrils the breath of life; and man became a living soul.—GEN. 2:7.

The especial point in the above text that I wish to consider just now is where God breathed into man's nostrils the breath of life, and man became a living soul. That expression, "breath of life," often comes into my mind, especially when I have been shut up where I could not get good air; after I get outdoors in the air where it is pure and cool, and take in big long breaths, thanking God with every breath I take for good strong lungs and good fresh air with vitality and constitution to stand the breeze or draft, then it is that these words come into my mind, "and breathed into his nostrils the breath of life."

You have, perhaps, read of the increasing number of deaths from tuberculosis, especially pneumonia; and you have read that our ablest physicians say they have made no headway in combatting the disease in the last thirty or forty years. They have made some big strides in the way of *prevention*, but nothing in the way of remedy through the use of drugs or medicines. I believe some success has attended the use of oxygen; but oxygen is *air*, so it can hardly be called a drug or a medicine. I believe, however, that physicians are meeting with better success in letting patients have more outdoor air than they have been in the habit of allowing them, even when they are pretty near to death. When Mrs. Root was so low a year ago the principal thing in the way of her recovery was that she could not sleep day or night. She begged piteously to have the windows open the way she had been having them all her life—I mean in the night time; but the doctors said that, in her weakened condition, it would be almost sure to make trouble—that is, if any of the windows near the bedside were opened. We had them open more or less in adjoining rooms, but she wanted the wintry air to blow right in on her face. I believe the nurses were a little more willing to give her the cold air direct from outdoors than were the doctors. But even I myself did not dare to take the responsibility of throwing the windows open wide when it was both damp and cold. After we had got rid of the doctors (and nurses too) we had all the air we wanted, and it gave her new life, as I rather expected it would. Now, I know it is a difficult matter to decide just the amount of outdoor air a patient can stand. People have been killed time and again by sudden drafts. But our good friend Terry says it was because they had gotten into wrong habits. Had they been sleeping every night with cold air blowing right over their faces they would certainly have been in much less danger from a sudden draft. We can harden

ourselves to sleep in cold rooms just as we bee-keepers become immune gradually to the poison of the bee-sting. It is a serious matter to disagree with a family physician; and one should be very careful about even *suggesting* that the doctors are wrong or did not understand their business. I believe just now, however, that all physicians are prescribing more fresh air, and *colder* air, than they ever did before. Of course, I asked the nurses a great many questions. One day at dinner I asked if there was any remedy for the whooping-cough. The nurse replied with bright vivacity:

"Yes, sir. Send the patient outdoors."

"But," I suggested, "suppose it is zero weather."

"Bundle him up and keep him outdoors as much as possible."

"But," I protested, "suppose it is damp and rainy as well as cold."

"Keep the patient outdoors just the same. Give him some work that will keep him warm, in the open air, but keep him outdoors in some way all day long; and if you can manage to have him sleep outdoors at night also, all the better."

Now, the above regimen is exactly what they are recommending for consumptive patients at the present time. A lady in our town who was threatened with consumption has been sleeping all this past winter out in an open veranda, and I am told she has received great benefit in so doing. I believe almost everybody agrees it is better to sleep outdoors; and the question often comes up, "Can we not make our sleeping-room just as good as outdoors by opening all the doors and windows?" Of course, this is for summer. In the winter we might open all the windows pretty wide, but hardly the *doors* also. I am inclined to think that, although a well-ventilated sleeping-room may do very well, it is not quite equal to the open air. When our ancestors came into the forest and put up their log cabins they had ventilation in spite of themselves. I can distinctly remember seeing the stars shine through between the shingles over my bed in the loft, and a good many times there was a covering of snow on the blankets in the morning. It did not do any harm, and probably did me a lot of good. I know for one thing it gave me an appetite for the milk and honey that I so greatly enjoyed about that time.

After our ancestors built some better houses, with lathed and plastered rooms, their ventilation was, perhaps, not quite so good; but with the open fireplace or the big stoves that came later, their rooms were pretty well ventilated, even if no particular pains were taken. When radiators and other appliances for warming took the place of the stoves there was more need of ventilation, but nobody seemed to think of it; and I am inclined to think nine-tenths of the people nowadays sleep in tight bedrooms with doors and windows all closed, and no thought of ventilation. Quite a number have told me that they never open a window

at all—and they do not see that it does any harm. If you think nobody is sick, look at the medicines on the shelves of our drug-stores, and then read the advertisements “given away free,” etc. These medicine men, at least some of them, get to be millionaires too; and it must be there are sick people or they would not find so many customers.\* We are a nation of people depending on poisonous drugs instead of looking for health in the way God gave life to Adam through his nostrils.

Now, I have made a discovery lately in the line of health. Terry and some of the rest of the pure-air exponents may say it is not a discovery because it is not new. But it was new to *me*, and I suspect it is new to at least *some* of the *doctors*. My discovery is this:

Indigestion, at least a part of it, is the result of breathing bad air, or, if you choose, breathing the air over again after nature has loaded it with poisonous exhalations and sent it out of your nostrils. Mrs. Root and I both of late have found it very hard to be obliged to sit in a crowded audience—at least where all the doors and windows are closed. She has a headache, and it makes me dull and stupid. As a consequence we do not go out very much evenings except to attend the evening preaching service; and as this does not last more than 20 or 30 minutes we get along even if the air is not first-class. Well, our people here in Medina have a lecture course every winter. They pay some of the great orators \$100 a night; and in order to give us our money's worth the high-priced lecturer generally speaks two hours. I object and protest; but as other people do not mind it I try to put up with it. Once during the past winter a celebrated speaker came during our severe zero weather. There were several hundred people in the hall—in fact, it was pretty well crowded, but there was not a window nor a door open anywhere—at least, none that I know of. The people were crowded so close around the windows that everybody agreed a window could not be opened. I think they might have been let down a little at the top; but somebody might have made a fuss, even then. They would catch cold from the draft on top of their heads, so I put up with it and suffered torture for a pretty good hour. It seemed to me that evening that every person had a different smell; and I remember thinking it was a sad reflection on my fellow-men as well as on myself that we should be such an “ill-smelling” lot; and as this was a highly intellectual discourse we had the very cream of our people. The different smells got all mixed up, and one had to breathe this foul filth-laden air or stop breathing. I actually considered getting up and going out. I might have pretended I was sick, and it

would not have been very much pretense either. I reasoned, however, that, as my appetite and digestion were excellent, and as I was in unusually good health, I *might* and thought I *would* stand it, and I did so.\*

Now, I hope you will excuse me if I mention some things that are not often discussed in print. I supposed that, after getting out in the open air, and breathing heavily of it, the foul matter would be expelled from my lungs, and that there would be no after-effects. The next day I was having my old trouble with indigestion. My bowels were all out of order, and I began to ask Mrs. Root what I had been eating that upset me. She said we had not had a thing on the table that usually disagreed with either of us. We are about alike in regard to our food. Along in the afternoon, almost 24 hours after breathing the bad air in the lecture-room, foul gases began to come up from my stomach and bowels. I stopped, and began to think. The taste and smell seemed a little familiar. Then I said, “Oh, yes! now I have it.” The foul smell that came up through my mouth from my digestive apparatus was exactly the same as the evening before. The poisonous gases that were generated from so many people breathing that foul air many times over and over had found a lodging-place somewhere in my system, and nature had been trying for 24 hours to get rid of them in different ways. The discovery that I made, and which I feel pretty sure many physicians do not understand nor appreciate, is that the respiratory organs are so connected with the organs of digestion that the foul matter gets into the stomach and makes one sick. Now, the above is not a very nice thing to talk about. It is a disagreeable subject in more ways than one; and did I not feel that not only our health and strength but that *human life* depends on people having a clear knowledge of these things, I would not mention it as I have done. Some of you may say I was mistaken—it was only a notion of mine that my bowels had gotten out of order because I breathed bad air for an hour before going to bed. But just wait a bit. I *accidentally* experimented a little later, and gained some evidence of the truthfulness of my theory. Our automobile-house is a rather close building. By the aid of the steam-pipes under it

\* The proprietors of the various medicines now advertised “free of charge,” or “not a cent to pay until you are satisfied you have been benefited,” get money *eventually* by persuading people that drugs may take the place of God's remedies—open air, pure water, etc.

\* I believe our modern school buildings are pretty well ventilated; and I have reason to think our opera houses are intelligently planned in this respect, although I know but little of the latter from personal experience. But I am sure that our churches, unless it is those of a very recent date, are sadly wanting in this respect. Any room or hall that is liable to be packed full of human beings should have the very best arrangements for ventilation that modern science and experience dictate. I rejoice to know that such places are now so well planned for the exit of the audience in case of fire. The sad lessons we have had taught us the importance of this. Now, a lack of air may result in wholesale sickness and death by means of spreading and encouraging consumption, pneumonia, etc. It does not come all at once, like the Iroquois horror, but it may be just as deadly, after all; and when people are killed by a lack of air to breathe, there are usually months and even years of suffering, and long strings of expensive bills for doctors and nurses. Is not one almost as bad as the other?

nothing ever freezes there in winter. One very cold day I ran the engine inside of the building, a little while, to make some adjustments. We had been warned in automobile journals to be careful about the effects of the burned gas when allowed to accumulate in a close room. Just as I had finished my adjustments I began to feel dizzy, with a little headache; but after I got out into the open air it passed away. Toward night I had a pain in my bowels. I asked Mrs. Root again what I had eaten that should bring back these old troubles. She was sure that our food had been as before—only that which agreed with us. But I questioned, Didn't we have some pickled onions, Worcestershire sauce, or something of that sort? She replied in the negative. But I insisted that the bad breath was exactly as if I had been eating leeks from the woods around our cabin up north. Then I began to laugh. It just occurred to me that the disagreeable gases smelled more like *gasoline* than leeks after all. Gasoline fumes that I took in through my lungs in the automobile-house had gotten into my bowels, and there was a disturbance until nature could get rid of the poison by belching it up with my breath. From that time on I declared I would not put up any more with air from any bad source, especially this bad air that is a cause or *the* cause of pain and distress in the digestive apparatus.

Just one more fact in this line. For years, as you may know, I have been having an after-dinner nap. To be out of everybody's way, when I am at home I take it in a nice dry basement. This basement is warmed by steam-pipes. When the weather is not too severe I sleep right before a west window with the breeze blowing right across my face. When it is zero weather, with a heavy wind, this window is partially or entirely closed. Sometimes when I awake from a nap I notice there is a very bad taste in my mouth, and I have wondered why it should be. After a little reflection I have found it was *always* after I had closed the window. When the window was opened so a good breeze would blow the air away from my face as fast as it was expelled from my lungs, my mouth did not have any bad taste. When the window was closed, the bad taste was back again. A bad taste in the mouth, say an acrid or metallic taste, is an almost sure indication of disordered digestion or bad stomach, as we call it. Now, it seemed then almost incredible that plenty of pure cold air should be a remedy for a "sour stomach." But I think it is true, at least in my case. A good many say, "I have tried it, but I can never stand it to sleep in a breeze or draft." You may remember that I have mentioned that Huber can not "stand" bee-stings. It is very desirable that he should work with the bees out in the apiary. But on one or two occasions the effects of a single sting was so severe and lasting we feared it might endanger his life. Well, within the past two months he has been getting bees out of the

cellar, and getting a sting every day or every two or three days, in order to get his system inoculated, and he is coming out all right. Most of the stings he gets have very little effect. Occasionally a severe one brings back some of the old symptoms. My friends, you can get hardened to drafts of outdoor air just as easily as we bee-keepers become (gradually) immune to bee-stings. Of course, you want to be bundled up. Sleeping outdoors in zero weather you will probably need to cover up all but your nose and mouth.

When Wilbur Wright was working with the flying-machine last fall, in his shirt sleeves, during a pretty cool day, I declared he would take a severe cold and be laid up. He replied, "Mr. Root, I shall never take cold in working in the open air, even if I do get pretty well chilled. I have been having the grip, but I do not fear that working out here will make it any worse. The thing that gives me a cold is sitting in a room that is unpleasantly warm." And I think Mr. Wright is right (?), and his experience will apply to a great lot of us. We take cold when sitting in rooms that are too warm; but very rarely by getting cold—at least where we are at work at something.

I am taking two floral journals, and I read them with great interest. One of our brightest teachers, Mr. William Scott, was speaking of how much plants were benefitted by being close to the glass. He said he did not accept the usual explanation, that it was because, the closer to the glass they got, the more light they got; for in a large house there is just as much light ten feet from the glass as close to it. His suggestion is this: Plants as well as animals require *fresh air*. They will not thrive without it. Our greenhouses are warmed by means of iron pipes, and we make our houses as tight as we can to keep out the frost; but in spite of our putty and nice workmanship there is more or less air getting around the edges of the glass. The plants get this fresh air when close up to the glass; and it is this and *not* the light that makes them thrive. You people who are growing stuff under glass have found out that insects, fungus, rot, and other diseases will always thrive in stagnant air; but good ventilation, especially spraying with water at the same time, not only in every corner of your greenhouse but on the under side of the leaves of the plants where they stand close together, is the very best remedy for any kind of "sickness" or lack of vitality in growing greenhouse stuff. Fresh pure air and water are better remedies than all the poisons and fumigations. It is *God's* remedy. He made us of the dust of the earth, and this dust *will* cling to us more or less if we do not look out. From the dust of the earth he raised us up, and we became living souls by the breath of life through our nostrils. The same breath that gave mankind life at its birth will help us to keep and prolong that life, not only for the *personal* benefit but for the benefit of those round about us.

May God be praised for this ever present remedy for so many of our ills; and may he give us grace and wisdom to make better use of it.



THE SEEDLESS APPLE BOOMED BY THE SCIENTIFIC AMERICAN.

The *Country Gentleman* bears down fully as hard as I did on the *Scientific American* in regard to the seedless apple. See the following, clipped from its latest issue:

We have noticed with sincere regret the article in question regarding the seedless apple. This is evidently written by some one interested in the promotion of the company, or else by a man who is easily taken in by the promoters. Many of the statements are copied almost verbatim from the prospectus circulated by the stock company. This certainly looks suspicious, and we think it fair to regard the article as not scientifically authoritative, even if it does appear in a journal of high scientific standing.

Since the above was in print we find in the *National Fruit Grower*, St. Joseph, Mich., a write-up of the seedless apple. It fills six columns (each 12 inches) and part of the seventh. It is true, the article is a contributed one, the writer living in England; but after searching the *Fruit Grower* all through I can not find a single line from the editor to suggest that our experiment stations have pronounced the apple poorer in quality than even the Ben Davis. This long and misleading article booming the Spencer apple is very careful not so say a word in regard to its *quality*. The question naturally arises, Is the *National Fruit Grower* (so well gotten up) for the benefit of its publishers or for its subscribers—those who pay their dollars for it? The same way with the *Scientific American*.

ANOTHER APPLE STORY.

Something over twenty years ago a traveling nurseryman sold me a dozen fruit-trees. The man who ordered them had not called for them, and as they were good-looking trees at a reduced price I set them out close by where a dwelling-house was built later. I paid so little attention to the labels that when the trees began to bear we did not have any name for them. But the Pomological Department at Washington, after receiving specimens, said that one of them, a sweet apple, was *Winter Paradise*. As the apple was corky and slightly bitter we had a good deal of sport about our "Paradise" apple. After it got to bearing it was always full; and as we considered them of no use we gave them away to the boys and neighbors. I think we put a few in the cellar, but nobody seemed to notice them particularly. Last fall the tree was loaded, and we talked about giving them to anybody who would pick them. I finally directed one of our men to pick a dozen bushels of the

largest. The tree was so heavily loaded most of the apples were rather small. Then I sold some of them for 30 cents a bushel. We were getting 50 cents for all other winter apples. While Prof. Green, of our Ohio Experiment Station, was looking over our apples I asked him why that should be named "Paradise." He said it was something he could not understand either. He added they had some of them at the station, but they were so bitter nobody wanted them. I think he said they gave them to the hogs.

Well, some time in January some of our people were eating the Paradise apples. I would not taste them because sweet apples always make me sick. During the severe zero weather our apples were frozen up as hard as bullets, and they remained frozen for three or four weeks. I said that, if we kept the cellar dark and cool, and let them thaw out gradually, they would be all right. Well, some varieties *were* all right, and some were not. The Winter Paradise came through the best of any unless it was Rawle's Genet. By the way, I consider the latter, as it grows with us, even poorer than the Ben Davis; but they may turn out better after they are ripe. They are certainly not ripe now, the latter part of March. Well, about the last of February, while sorting the apples over, I tasted one of the Paradise apples just for fun; and, lo and behold! it was not bitter a particle, but it was the most juicy and luscious apple "I ever tasted in my life." May be you have heard me use the same expression before. In fact, they were so exceedingly luscious I made up my mind I would take the chances of being sick, or, rather, that I would rather be sick afterward, than to be deprived of the intense satisfaction I was getting from those Paradise apples. I thought as I did when I was off in that apple-orchard in Arizona, that it could not be possible any thing that "hit the spot" so *exactly* could be harmful, and that it *must be* that God really intended apples to be a large part of man's nourishment. I ate just about as many as I wanted; and, wonderful to tell, I rested quietly all night, and experienced no bad effect at all in the morning. Mrs. Root suggested that my excellent digestion just now might stand it once, but it would not do to think of following it up. If friend Terry reads this I feel sure he will have a good laugh. I can not understand it better than any one else; but it is certainly true I ate those apples forenoon, afternoon, and a whole half-dozen in the evening, when I got tired of reading my magazines and papers, and no bad results followed at all, but quite the contrary. Now I know *why* our forefathers, years ago, called it Winter Paradise.

First, it is not good until winter is almost over; and, second, if it was not in paradise when God gave Adam and Eve that garden it ought to have been, according to my notion. It was not the forbidden fruit, surely, because bad results followed in that case, but none at all from *my* Paradise apples. As the rest of the family said they did not

like them particularly I was allowed to get both happy and fat on my beautiful crisp white apples. I persuaded Mrs. Root to take half of one occasionally, but she always says she does not care for any thing that suits me to dot, especially if the *supply* is limited.

A while ago friend Terry, in his Health Notes in the *Practical Farmer*, said a certain young minister had received so much benefit from a special kind of pill, that he thought Terry ought to recommend it, telling where the pills in question could be bought, etc. Terry was laughing at the idea of recommending pills of any kind in his Health Notes. This young pastor, however, insisted that he had no end of trouble with his digestion until he got hold of these particular pills and took them regularly. Terry said if he could get hold of that young minister, and be with him a few days, he could teach him how to have good health without using any kind of pills. Well, now, these Paradise apples had the same effect on my health that the pills did on that young minister. I beg pardon for the illustration, however, because crisp ripe apples should hardly be named in the same paragraph with pills of any sort. Eating as many apples as I care for just before going to bed proved a wholesome remedy for any tendency toward constipation, without anything unnatural or unpleasant at all. I beg pardon for being so explicit, but may be there are other people who have the foolish notion in their heads that they can not eat real ripe apples just before going to bed. Very likely there is something in getting your system accustomed to fruit at regular hours, something like getting immune to bee-stings, for instance.

And now I want to say to the *Rural New-Yorker* people that I am ready to join the "Apple-Consumers' League," providing they will let me have the Winter Paradise or some other apple that is equally easy of digestion. The Paradise apples are just gone. I have tried substituting the Ben Davis and some other sorts; and since nature has become so accustomed to the apple diet she manages the other kinds pretty well providing they are quite mellow and the skins are removed. May God be praised that I can score *one more* substitute for drugs and pills; and what a beautiful substitute a handsome ripe apple is, anyhow! You will find the Winter Paradise recognized and described in our standard dictionaries as well as in our fruit-books; but I fear none of them have thought to mention that they are not fit for use until the latter part of winter or early spring.

#### SPRAYING FRUIT-TREES WHILE IN BLOOM.

It would seem as if this matter had been gone over sufficiently in years past; but it may be it is well to remind the world at large that our experiment stations, our agricultural periodicals, and everybody else of authority caution against spraying trees while in bloom. It not only poisons the bees but many times it does harm instead of

good to the fruit-grower. Spray just before the blossoms open, and then again just as soon as the petals have fallen. We can mail a leaflet in regard to the matter on application.

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#### GET-RICH-QUICK ADVERTISING SCHEMES.

One of our bee-keepers sends us the following, thinking I may be interested in it:

Do you want money? Thirty to forty dollars a week on the side. An hour a day will work this business, and it will not interfere with any occupation or business that you are at present engaged in. It is a practical, easy, and pleasant business that any man can do.

Works the year round. There are no dull times with it; your income is sure every day in the year, and with this easy, pleasant work you can make from \$30.00 to \$40.00 every week, in any county, city, or even in the country; it requires no hard work—a lady can work it. It's guaranteed to succeed or you get your money back, so you are perfectly safe.

There's no talking. You don't have to get out and hustle; there is no canvassing or mail-order feature about it, neither is it portraits. You are the boss, and have nothing to buy of me; you can purchase everything in your own town, and are independent with it.

No capital required. It requires practically no capital to run it, and the results are immediate. You do not have to employ any help, but can run it any evening if you can spare an hour or so. It is perfectly legitimate, honest, and practical; there's nothing about it that a gentleman would hesitate to do.

It's guaranteed to work. I stand back of this scheme; and if it doesn't work for you return it and your money comes back on the next mail. The price is one dollar—all complete—everything you need to go right to making a good income for yourself. Remember, if you don't succeed, return it and get your money back.

Is not the above a hummer? Just think of fussing with ginseng, strawberries, or even bees, to say nothing about getting a living by working on a farm when such opportunities as the above are before us! It makes me think, however, of the man who told a small boy he could tame any bird by putting some salt on its tail. There were some birds off on the lawn enjoying themselves, and the boy's face brightened up at the suggestion. To carry out the joke the man furnished the boy with a handful of salt, and he started off after the birds, full of enthusiasm. But before he had got many rods he slackened up and finally came back, and, extending his hand containing the salt to his older companion, he exclaimed, "Say! you do it." And I should like to say to the man who sends out the above circular, in the language of the boy, "You do it." If our readers could see the sad letters that come to me from people who have lost their hard earnings, it would probably be a useful lesson. It is not only dollar investments, but some of our bee-keepers have lost their bees, their farms, and *their homes* by being persuaded to invest in oil stocks, coal-mines, new colonies in Florida, Cuba, South America, etc. One good friend says he was *hypnotized* or he never could have gone into such a speculation with his eyes open. He says the fellow who did it hypnotized a lot of his neighbors in the same way. After he had got their money safe and sound he forgot that he had ever known them or had any thing to do with them. And he was careful enough to have it all fixed so the law could not touch him.

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# Prize = Photo = Contest.

## For the Best Photo of an Apiary.

- 1st prize, one red-clover breeding-queen; value \$5.00.
- 2d prize, one select tested red-clover queen; value \$2.00.
- 3d prize, one tested red-clover queen, value \$2.00.

For the best photo of a single hive of bees, or a swarm clustered on a limb, or of any other object interesting to bee-keepers:

- 1st prize, one three-frame nucleus with tested Italian queen; value \$5.00.
- 2d prize, one Danzenbaker hive complete, nailed and painted; value \$3.10.
- 3d prize, one leather-bound A B C of Bee Culture; value \$2.00.

Photos should not be marked in any way, but your full name and address should be put on a separate sheet, and enclosed with photo, and marked "For prize competition." Do not neglect this. Photos not winning a prize will be paid for according to the value to us, if we can use them.

Parties winning any of these prizes will be given the opportunity to make a selection of some other item if the prize awarded can not be used. The time is short, and photos should be sent at once.

### TO FOREIGN READERS.

We offer for photos as above described, suitable for half-toning, the following list of prizes, separate from the foregoing, as the time limit on the above is too short to be available for foreign readers:

- 1st prize, one red-clover breeding-queen; value \$5.00.
- 2d prize, one select tested red-clover queen; value \$3.00.
- 3d prize, one leather-bound A B C of Bee Culture, value \$2.00.

Time limit, July 1, 1905.

## Extension of Time.

In our March 1st issue we gave particulars of the prizes offered below, limiting the time to April 1st. It now appears that the time is too short; we, therefore, extend the time to **May 1st**. The prizes are as here given.

Address

**The A. I. ROOT Co.,**  
Medina, Ohio.